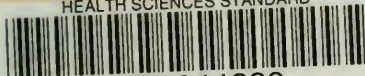


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HEALTHY BABIES

S. JOSEPHINE BAKER

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HEALTHY BABIES

A Volume

Devoted to the Health of the
Expectant Mother and the
care and welfare of the child

BY

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TO
MY FATHER
AND
MY MOTHER
THIS BOOK ON CARE OF
MOTHER AND CHILD
IS LOVINGLY AND
GRATEFULLY
DEDICATED



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PREFACE

The methods and advice given in this book on care of babies are, first of all, intended to be used in keeping babies well. The book is in no sense intended as a method of treating sick babies, nor should the advice that is given ever take the place of the individual care that can be offered by a doctor. The methods of keeping babies well are simple and easy, but the methods of curing babies after they are sick are difficult and often complicated. It has been proved over and over again that babies can be kept well with very little effort, and that any intelligent mother can learn all that is needful to assure good health in her baby. There are certain minor forms of illness which can be corrected or cured simply by readjustment of the hygiene of the baby's life or perhaps by the use of some simple household remedies, and there is no reason why the mother should not know and apply the proper treatment in cases of this kind, but if actual illness occurs there should be no delay in obtaining the help of a qualified physician.

Saving babies has proved to be one of the most interesting and satisfactory types of health work that has ever been carried out in this, or any other country. In every city or rural community where there has been any

systematic effort to reduce the baby death rate, the results have been prompt and satisfactory. [During the past ten years in many of the large cities of this country the baby death rate has been cut in half.] The saving of infant life during this period has been beyond all expectation of what it had been thought could be accomplished by proper community action, and intelligent mother care. After all, these are the only two things that are necessary: first, the community must provide the necessary surroundings and equipment for the mother, and in many instances it must give her the instruction which will enable her to have an intelligent idea of the simple methods of baby care; second, the mother must use the knowledge which she has gained, and must make use of all the community helps and aids in seeing that her baby is cared for in a proper manner. The community can furnish decent housing, clean streets, clean water, pure milk, parks and playgrounds and opportunities for wholesome living. The mother can use these in assuring a healthful and wholesome life not only to her baby, but to her other children.

One of the most interesting facts that have been ascertained in our efforts to keep babies well is that the simple things are best. During the past few years there has been a great

reaction from the complicated and over-solicitous methods of baby care of the past. There is no question whatever that more children have been killed by overcare than by lack of care. There is a happy medium, too, between the rigid methods of ultra-scientific baby care, with its lack of human contact, and its stern, methodical routine, and the happy-go-lucky, careless, neglectful way of handling infants, the disastrous results of which have been evident in the past. This middle way, which is the sensible and successful one for keeping babies alive and well, has as its first principle the utmost simplicity, both in surroundings and methods.

A great deal of common sense is needed in handling babies; regularity in feeding, attention to proper methods of hygiene, proper adherence to the rules regarding the right kind of clothing, fresh air, exercise, sleep and quiet, all are essential, but they must not take the form of rigid routine, to be carried out to the exclusion of the baby's human needs. After all, no baby will live unless he has that intimate, human contact which, for want of a better name, we call "mothering."

Every baby must be taken up in his mother's arms not only once, but several times a day. There is a time and a place for this, however, and over-handling and over-fussiness are just

as harmful as lack of any care. It is of the utmost importance, therefore, that in studying this book, and in applying its principles, the mother must never lose sight of the fact that the intimate relationship between herself and her baby may be maintained, yet every detail of proper baby care may be carried out at the same time. It has been found over and over again that babies who are perfectly well may be placed in properly equipped institutions where they are given all that modern science can devise in the way of the most approved methods of baby care, yet such babies will sicken and die if they are not taken up at frequent intervals and held, cared for, and really loved by some woman who has the mother instinct.

It may readily be assumed that there is no need whatever for calling the mother's attention to this essential relationship between herself and her baby, and asking her not to neglect it. The only reason why this question has been referred to at all is because in the over-anxiety to give the babies the best of care, there has been a tendency to accentuate the more material things in the baby's life, and to neglect this human element which is of the utmost importance. A wise and intelligent mother is probably the highest representative of humanity. Her intuition and inclination

accentuate her mother love. Her wisdom and intelligence should teach her how to direct that love into the wisest and sanest channels.

The best way to use this book is to read it through so that the general subject matter may be familiar. It is well to study the chapters on the routine care of the baby so that bathing, airing, clothing, exercise, and all the other important details of the baby's life may be arranged in advance, and followed without interruption. In any book on health matters certain directions must of necessity be repeated many times with reference to different incidents, and sometimes the same type of care will be discussed from various points of view. In order to learn all that the book contains on any given subject, the contents should be consulted. The glossary contains the technical words that have been used in the book, with their meaning. If there is the slightest doubt as to the exact meaning of any word, it should be looked up in the glossary.

There have also been inserted in this book three sets of baby record forms. It is hoped that these may be not only of immediate value to the mother, but that they will form an important permanent record of the various phases of the baby's life.

S. JOSEPHINE BAKER.

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HEALTHY BABIES

CHAPTER I

THE NURSERY

Two laws of the nursery are simplicity and cleanliness. The room in which the baby is to live should not resemble a hospital ward with its unrelieved bareness and whiteness, neither should it be the opposite extreme—an over-furnished room with upholstered furniture and carpets. The right type of room is one in which everything may be washed, but it is not necessary to sacrifice beauty and harmony. A room with at least two windows and a southern exposure is best. If such a room is not available, the brightest, airiest, and quietest room in the house should be given over to the use of the baby.

Painted walls are preferable. If paper is to be used, either that or the paint may be a soft gray-green in color, or a light buff or tan. The floors should be bare, preferably finished with shellac or an oil dressing which keeps the dust from rising. If the floor is not in suitable condition to be left bare, plain linoleum makes an excellent covering. Rugs should be small, easily handled, and of some washable material. Common cotton rugs are best. If only one set of shades is to be used on the windows, dark

ones should be selected. Plain muslin curtains may be fastened directly to the sash, so that when the window is opened, the curtains will go up with it.

Furniture and Other Furnishings

While the baby should always sleep alone, during the early months of life it may be necessary for the mother or nurse to sleep in the same room. The furnishings of the nursery, therefore, may include a single, full length bed, in addition to the crib or bassinet.

There is no real reason why the baby should not sleep in a crib from the time it is born, but if a crib is not available, a bassinet may be used for the first few weeks. Many types are sold, but there is nothing better than an ordinary clothes basket for this purpose. A large box may be used if a basket is not available. The basket or box should be lined with thin padding, consisting of cotton batting between two layers of cloth or silk. This lining is sewed or fastened around the inside of the basket, or the sides of the crib so that no direct draft will fall upon the baby. A felt or hair mattress is advised, and is to be placed in the bottom of the bassinet. The bed should be made up first with a rubber sheet spread over the mattress, next a thin cotton mattress pad and a cotton sheet. A covering

sheet and two light weight but warm blankets or a small down comfortable are advised. Pillows are not necessary.

In addition to the crib or bassinet, the following nursery fittings will be found useful:

Two low chairs, without arms. One may be a rocking chair.

A chiffonier or closet for the baby's clothes. This may be built into the room or may be removable.

A small bureau or chest of drawers.

A low table about 36 x 24 inches, and not over two feet in height. A larger table may be used, if desired. The ordinary kitchen table cut down to the proper height answers the purpose well. Half the table should be used for toilet articles, and the other half for dressing the baby.

Two shelves at convenient heights over the table. These should be open so that the articles placed on them may be easily reached, and so that they may be cleaned readily.

A small rack for the baby's clothes. The best type is the ordinary low clothes horse.

A three-fold screen. This should preferably be made of plain wood which may be painted white. A high clothes horse will do admirably for the purpose. The panels may be made of white muslin so that they may be washed, and they may be gathered on tapes at top and bottom, and fastened to the individual folds of the screen.

A tin or rubber bathtub which may be placed under the table when not in use.

A pair of scales.

Two wash basins.

Two pails with covers, for diapers.

A small size chamber, made especially for babies' use. A round dish, with broad, flat edges, may be substituted.

A wall thermometer which should be hung over the head of the baby's crib.

A hot water bag, with flannel cover.

A soft blanket, about four feet square.

A rubber sheet, four feet square.

Six well laundered, fairly old, soft towels.

Four wash cloths. Two to be used for the face and two for the body. Those for the face may be woven, and those for the body knitted, or there may be different colored borders for the two sets, so that they may always be kept for the same use.

A soap dish.

A soft brush for the hair.

On the shelf may be placed the few drugs and other small articles which may be needed from time to time. These will vary according to the doctor's directions for the individual baby, but the following will be found valuable in practically every household:

Milk of magnesia

Bicarbonate of soda

Castor oil

Zinc oxide ointment

Boric acid powder

Stearate of zinc powder

Tube of white vaseline

Toilet Articles

Roll of absorbent cotton

Talcum powder

Castile soap

Large safety pins, two dozen

Bath thermometer

Small safety pins, two dozen

Medicine glass

Ventilation

Fresh air for the baby is essential in every room, both day and night, but care must be taken to see that there are no direct drafts. The bed should be placed where the light will not fall into the baby's eyes, and where there will be no draft. A screen may be used for this purpose. Some provision should be made for fresh air coming into the room both day and night. Probably the best method in cold weather is by the use of window boards, which consist of boards about six inches wide, an

inch thick and long enough to fit into the width of the window. The lower sash should be raised six inches, and the board inserted across the bottom. The air will then enter between the upper and lower sashes in sufficient quantity to keep the room well ventilated. In warm weather, this is not sufficient. Then the windows must be kept wide open, and it is important to see that each window is screened carefully against flies and mosquitoes. Thorough airing of the nursery should take place both night and morning. During this time the baby may be taken into another room.

Temperature

The best type of heating for the nursery is the open fire. When this is not obtainable, and radiators or registers are used, at least one pan of water should be placed on the radiator or register, so that the air in the room will not become too dry.

For the first two or three months of the baby's life the temperature in the nursery during the daytime should be from 66 to 68 degrees, and from 64 to 65 degrees at night. This day temperature is to be continued through the first year of life, but after the baby is three months old the night temperature should be reduced to 55 degrees, and after one year of age from 45 to 50 degrees is proper.

The temperature should always be read on the thermometer which hangs at the head of the baby's crib. If the baby is kept comfortably warm, has plenty of the proper type of bed clothing, no harm will be done if the night temperature goes below 65 degrees in the first three months or below 55 thereafter.

Lighting

During the first two or three weeks of life strong light must be avoided in the nursery. Dark shades are best to soften the light, although the room should not be completely darkened. Thereafter the ordinary lighting may be used for the baby's waking hours, with partial darkness during the sleeping time. Babies are peculiarly sensitive to light and sound, and for this reason the room selected for the nursery must be where the greatest amount of quiet may be obtained.

Toys

Very young babies do not need toys. When they are about three months of age, and begin to grasp objects, the simple rubber toys and those made of washable celluloid mixtures are best. These may be hung by a string to the side of the crib or baby carriage, but the string should not be long enough to allow the toys to reach the floor. Never hang toys from

the cover of a crib or carriage so that they dangle in front of the baby's eyes. This is an exceedingly bad custom, for it puts undue strain upon the eyes of the child.

Young babies are in the habit of putting everything into their mouths. For this reason toys which cannot be washed are harmful. The toys that are used must be washed at least once a day, and oftener if they fall on the floor. Toys with bells, whistles or other small ornaments which may become loose, easily detached and possibly swallowed, should never be used by young children.

When the baby is teething, a cutting ring is almost universally used. This may be of hard rubber, celluloid or ivory. There are also large, round, hard crackers which are sold for this purpose. The ring should always be tied to the crib or carriage so that it cannot touch the floor, and when it becomes soiled should always be washed before being used again by the baby.

Baby Carriages

The choice of a baby carriage is important. Comfort is often sacrificed for the sake of appearance, and here, as in every other phase of baby life, simplicity should be the rule. The carriage should first of all be light in weight and simple in construction, with rubber

tires and good springs. The hood or top should be arranged so that it may be moved in two directions—forward and back. The fittings of the carriage when used for a very young baby, should be a flat, firm pillow or mattress, covered with rubber sheeting and a mattress pad. The upper cover should be warm, loose and light in weight, the whole fastened down with a strap which keeps both the baby and the covering secure without any undue pressure. The top should be adjusted so that there may be no direct wind blowing on the baby's head, and so that the sun will not shine into his eyes.

The low go-cart has many conveniences. It is usually light in weight, easy to handle, and may be folded up, and put out of the way when not in use. On the other hand, it is not suitable for the very young baby as it forces the child to sit too upright, and also brings the baby so close to the ground that he cannot be adequately protected from the dust of the street. The simple high carriage is better until the baby is at least six months old.

Record Book

The keeping of a record book of the baby's life has many advantages. Its drawbacks are mainly that the setting down of information relative to the baby's growth, progress and

symptoms may tend to over-accentuate the importance of these items, and thus cause the mother unnecessary concern if the record does not show constant improvement. On the other hand such a record may not only be of great help to the physician, but may also be of definite value to the mother.

Any blank book may be used for this purpose and each day's record, with the date, should be placed on a separate page. Certain items, such as weight, should be entered only once a week. The type of feeding may be put down on a certain date and thereafter left unrecorded unless a change is made. If medicine is given at any time, or if illness occurs, brief data regarding this may be inserted. All changes in time of feeding or character of feeding should be noted.

Separate pages may be kept for recording important facts in the baby's life. A weight chart similar to the one given in the back of this book should be inserted, and the baby's weekly weight recorded. Under the heading of "growth" record may be made of the baby's length at birth, height and chest measurements, the dates upon which he first held up his head, grasped for objects, sat upright, recognized father or mother, uttered the first word, began to creep, to stand alone, and other important items. This record often is of

great help to the physician, because of its relation to muscular and mental development. (See Record Sheets in back of this book.)

CHAPTER II

GROWTH AND DEVELOPMENT

WEIGHT

The average weight of a baby at the time of birth is from seven to seven and a half pounds. The birth weight is generally doubled at the end of six months, and trebled at the end of the first year. (See Weight Chart on page 206.)

During the first few days of life there is a slight loss of weight which may amount to from four to eight ounces. As soon as feeding is established regularly a gain in weight should begin, and at the end of ten days to two weeks the amount lost should have been regained so that the baby weighs the same as at birth. During the first six months of life the gain in weight is more rapid than during the second six months. It will average from four to eight ounces a week while during the second six months the weekly gain is from two to four ounces. As the baby grows older, the gain each week tends to lessen somewhat, but in general, the following may be taken as a guide:

1st, 2nd, 3rd months, 6 to 7 ounces a week,
4th, 5th, 6th months, 4 to 5 ounces a week,
7th, 8th, 9th months, 3 to 4 ounces a week,
10th, 11th, 12th months, 2 to 3 ounces a week.

Bottle fed babies are less apt to gain during the first month. After that, the increase in weight is about the same as that of breast fed babies. The gain in weight of a baby is not always entirely regular. Sometimes the weight will be stationary for two or more weeks, yet the baby will remain perfectly well. In bottle fed babies, this is usually a sign that the percentage of milk in the feeding formula should be increased. Stationary weight in breast fed babies may be an indication that supplementary feeding is needed. Gain in weight is less in warm weather. The weight may be stationary for two or three weeks in the summer without any resulting harm, and during the hot weather no attempt should be made at extra feeding in order to increase the weight. Teething is also apt to delay regular weight increase, and in many babies there is a period dating from the seventh to the tenth months when weight may be stationary or increase very little. During the second year the gain, which averages about five or six pounds, is quite irregular. It is often interrupted by changes in the weather or changes in the type of feeding.

Weighing

The baby under six months of age should be weighed once each week. From six months

to a year once every two weeks, and from one to two years once every month. This weighing should take place at the same hour, on the same day each week, preferably just before the bath. It is not necessary to undress the baby for the weighing, provided the same number and kind of clothes are worn. The main point to be remembered is not how much the baby weighs, but whether the gain is regular, and of proper amount. Each baby is a law unto himself, as far as size is concerned, and there is no reason why a baby who weighed five pounds at birth and gained in proper proportion throughout the first year cannot be considered as healthy as the baby who weighed ten pounds at birth and gained in the same proportion.

Scales

The best type of scales are expensive. The kind used at the baby health stations and in hospitals are those with the bar and weight at one end and a flat platform on the other. On this platform is placed a flat pan with only two sides. (See illustration opposite page 19.) This is to prevent the baby's falling off the platform of the scale. The ordinary grocery scale is excellent for the purpose of weighing the baby. If the child is small enough he may be placed in the

ordinary scoop. As he grows older a larger scoop or basket may be substituted, care being taken to see that scale balances perfectly when it is empty. The basket scale with dial attachment, such as is sold in most baby furnishing stores, is good until the baby is about a year old, provided a reliable type of scale is purchased. The difficulty with them, however, is that all scales which have dials to indicate the weight fluctuate with the movement of the baby so that it is difficult to record the exact weight. The ordinary pocket scale which consists of a nickel holder with a hook on the end is not advised unless no other scale is available. It has the advantage, however, of being very cheap, costing usually from twenty-five to fifty cents. The baby should be placed in a napkin made in the form of a sling, with the four corners tied together. The hook of the scale is then placed in this knot and the baby's weight read on the indicator of the scale.

Weight is the best indication we have of the progress of the baby. Long-continued stationary weight or actual decrease in weight are usually signs that there is something wrong with the feeding or that the baby is ill. Usually this is a matter which requires adjustment of the feeding. Boys have a tendency to be a little heavier than girls, but, in general,

not much difference is noticed during the first year.

HEIGHT

The average height of a new born baby is about twenty inches. During the first six months there is a gain of about five inches. During the second six months there is a gain of about three inches, so that at the end of one year the baby should measure about twenty-eight inches in length. During the second year the gain in height is from three to four inches. Height is not of much importance, because so many other factors have to be taken into consideration. Sometimes all the members of the family are small in stature. Sometimes the race to which the child belongs always shows small development. The point to be remembered is whether or not the child is keeping up its normal relation of weight to its height, rather than to pay too much attention to its height alone.

RELATION BETWEEN SIZE OF HEAD AND CHEST

During the first few years of life the baby's head always seems unduly large when compared with the rest of the body. This is a normal condition. At birth the average chest measurement is thirteen and a half inches while the head measures fourteen inches in

circumference. At one year the chest measurement is eighteen inches, and the circumference of the head, eighteen inches. At two years the chest measures nineteen inches, and the circumference of the head nineteen inches.

MUSCULAR DEVELOPMENT

The normal baby should be able to hold up his head without assistance at three to four months, and should be able to sit erect, with his back unsupported, between six and seven months. The first efforts to creep are made usually between the sixth and eighth months. Between the ninth and tenth months the baby tries to get on his feet, and from twelve to fourteen months should be able to walk alone. From fourteen to fifteen months he should run about without assistance.

Attempts to walk should never be unduly urged, nor should any effort be made to allow the baby to hold up his head or sit or stand up before he is able to do so voluntarily. It must be remembered that during the early years of life the bones are soft, and must not be subjected to any strain. This is true particularly of the bones of the legs which, in walking, must bear the weight of the body. Inability of a child to begin to walk at the end of a year may be an indication of some nutritional disorder, such as rickets, and if

efforts are made to force such a child to walk, the bones of the legs are likely to bend, and may become permanently deformed. The great majority of cases of "bow-legs" are caused by children suffering from rickets being allowed to walk at too early an age.

The bones in early childhood contain a very small amount of calcium salts, so they are apt to be pliable, rather than brittle. Fractures of the bones in very young children are commonly called "greenstick fractures," because they resemble the kind of break that is made when one breaks a thin green stick. Frequently very little children appear to be bow-legged. This is probably true when they first stand on their feet. Careful observation will show that in the great majority of instances babies are not bow-legged at all. The flesh on the inner side of the thighs has a tendency to push the knees apart, and the baby will stand with the knees firmly planted at a distance from each other, so as to maintain his balance. The condition of "bow-legs" may be said to exist only when the knees are a considerable distance apart, although the ankles are in contact.

Some children never creep. There are others who make every effort to push themselves around in this way. Creeping should not be urged. Teaching children to walk by the use

of contrivances is also to be condemned. The child should not be urged to stand, until he is ready to do so voluntarily.

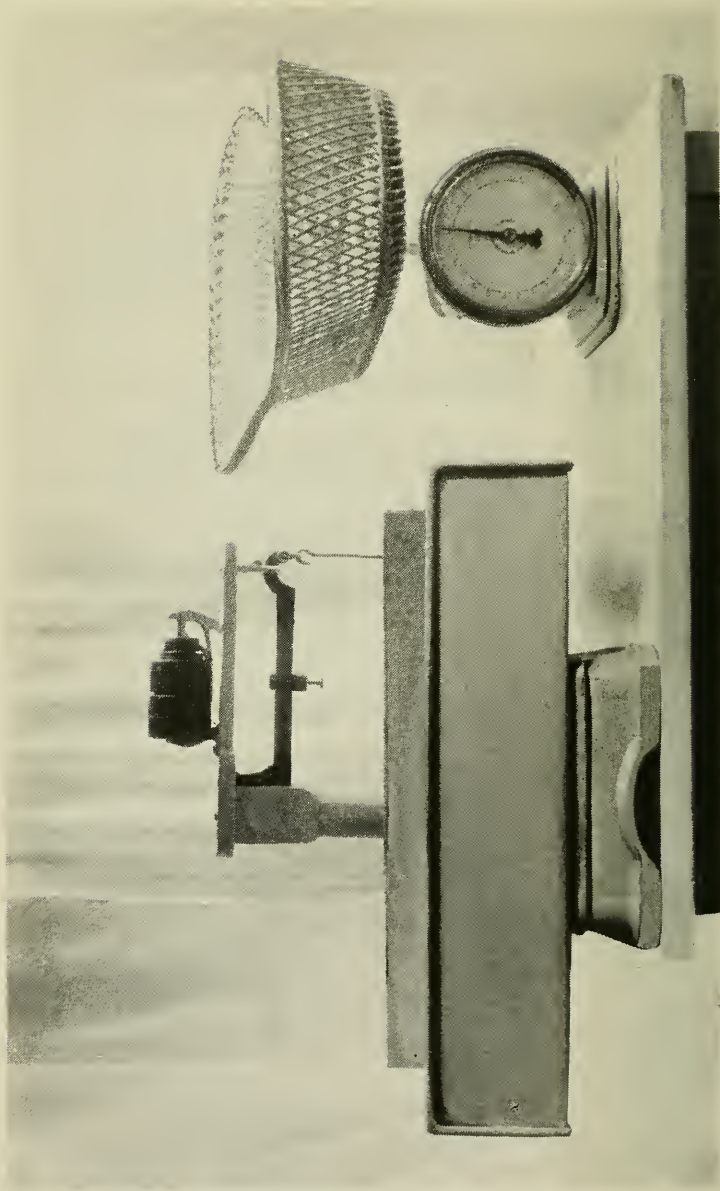
Not all babies progress alike in their muscular development. There are many things which may cause a child to be slightly backward in this respect. Thus, premature or delicate infants develop slowly. Severe or long illness, rickets, or cases where babies have had continued bowel or stomach disorders usually show retarded development. These children are not abnormal. They are simply slow. If they regain their health their tardiness in the matter of muscular development is usually made up in the second year.

SIGHT

It is probable that babies see nothing at the time of birth, although within a very few hours they seem to distinguish between light and darkness. However, objects are not recognized for from six to eight weeks. At three months the baby will usually focus his attention, and may recognize a few people, such as the mother or nurse. While the baby will grasp an article held up to him when he is three to four months old, he does not definitely reach out for toys and recognize them until he is six months of age.



Proper Method of Measuring Baby



Baby Scales

In early life the baby is particularly sensitive to light and should be kept in a semi-dark room for the first two weeks. When outdoors or in a bright light, the eyes should always be protected by holding the baby so that the light does not shine directly into them.

Practically all babies have blue eyes at birth. This sometimes changes during the first few weeks to what is usually the permanent color. Many children are cross-eyed during the first few weeks of life, due to their inability to focus the eye muscles. This is merely a temporary condition, and tends to get well of itself. If the cross eyes persist beyond the third or fourth month, the advice of a physician should be secured. While crying is common in new born babies, tears are not. They do not appear until about the third month.

HEARING

Babies are deaf at birth. This is due to the mucus in the ear canal. The condition soon clears up, however, and thereafter the baby's hearing is abnormally acute. Sounds are recognized in a few days, but it is not until about two months of age that the baby is able to recognize where the sound comes from. This sensitiveness to sound is important, and indicates the need of quiet for babies. At

about the same time the baby learns to recognize his parents by sight he also recognizes their voices.

SPEECH

The average baby is able to say a few words at the end of one year. These are generally the most common words, such as "papa," "mamma," or there may be a definite recognition of objects by giving them a name. From that time on development in speech varies a good deal in different infants. Some children learn to talk within a very short time, while others are much slower. Usually a child can form short sentences at the end of two years. If the baby is unable to talk at all when it is two years old, there are certain possibilities that must be suspected, either that the baby is a mute, a deaf mute, mentally backward or actually mentally defective. Occasionally, failure of speech is due to some physical defect in the vocal apparatus. In any event, if the child cannot speak at the end of two years, medical advice should be obtained.

Closely allied to speech is the expression of pleasurable emotions. Babies will smile at a very early age, even when only a few days old, but they are not conscious of any pleasure. In fact, sometimes a little grimace or what seems to be a smile may be caused by indiges-

tion. The first smile of a baby which may be said to reflect any feeling of well being or happiness occurs at about four or five weeks, while the average baby laughs aloud between four and five months.

TEETH

The first teeth are twenty in number and appear at fairly regular intervals:

Month.	No. Teeth	Location	Ills.
5- 8	2	Lower central incisors	See A
8-12	2	Upper incisors	See B
12-18	2	Lower lateral incisors	See C
	4	Front molars, upper and lower	See D
18-24	4	Canine teeth--upper jaw "eyeteeth"	See E
	4	Canine teeth--lower jaw "stomach teeth"	See E
24-30	4	Back molars	See F

Month	Year	Total No. Teeth	Location	Ills. No.
6	1	2 6	(2) Lower central incisors.....	See A
			(2) Lower central incisors.....	See A
			(4) Upper incisors.....	See B
18		12	(2) Lower central incisors.....	See A
			(4) Upper incisors.....	See B
			(2) Lower lateral incisors.....	See C
			(4) Anterior molars.....	See D
	2	16	(2) Lower central incisors.....	See A
			(4) Upper incisors.....	See B
			(2) Lower lateral incisors.....	See C
			(4) Anterior molars.....	See D
			(4) Canine teeth.....	See E
	2½	20	(2) Lower central incisors.....	See A
			(4) Upper incisors.....	See B
			(2) Lower lateral incisors.....	See C
			(4) Anterior molars.....	See D
			(4) Canine teeth.....	See E
			(4) Posterior molars.....	See F

The baby should have the teeth listed above at the given ages.

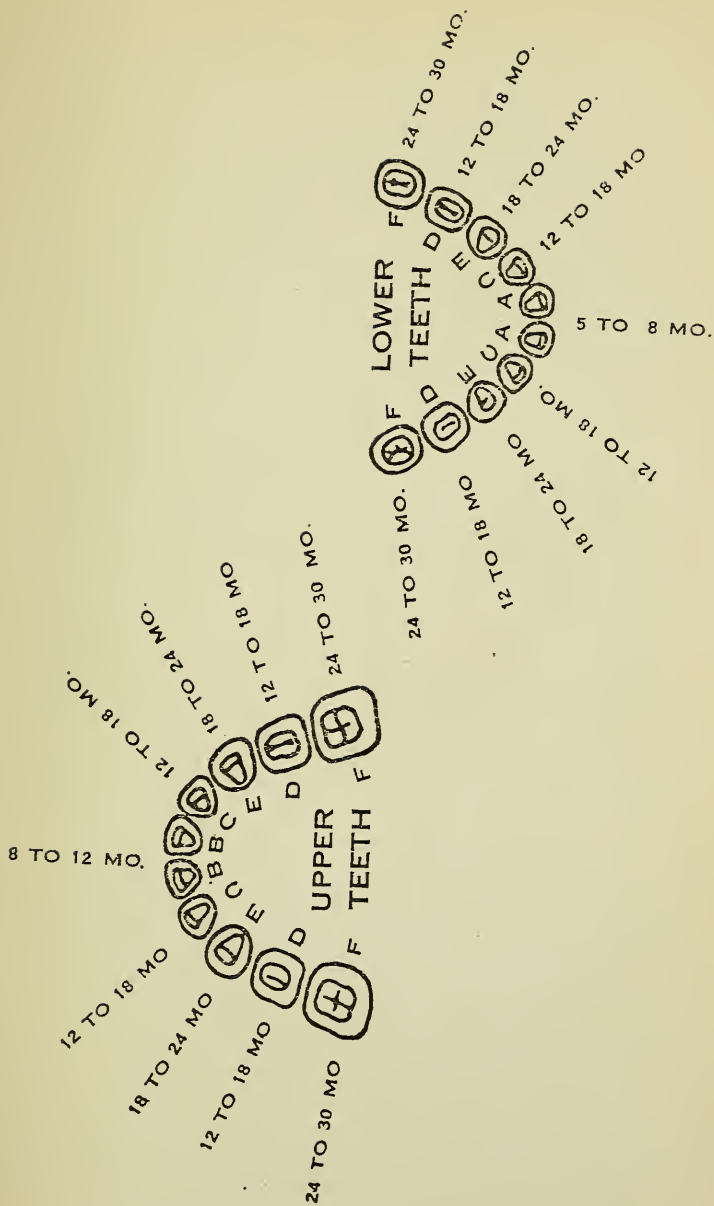


Chart of Teeth

The appearance of the teeth varies in families and sometimes in different babies in the same family. Teething may be delayed because of long illness, rickets, general ill-health, undernourishment, or because of a family trait. Dentition is often delayed with no apparent cause. Breast fed babies are apt to have their teeth come through earlier than those who are bottle fed.

Teething

Normally, teething, or what is known as "dentition" should not cause any digestive disturbance, and if the baby is suffering from either stomach or bowel disorders teething should not be looked upon as the cause, which is probably some wrong method of feeding or wrong type of feeding. Some babies have their teeth come through without any disturbance whatever. Others are apt to become irritable, do not sleep well for two or three nights, there may be slight loss of appetite with some restlessness and occasionally some fever—from 100 to 101 degrees Fahrenheit. A slight diarrhea and occasionally vomiting may accompany dentition, but they tend to clear up within a very short time. Severe cases of diarrhea or vomiting are due to causes other than teething. The symptoms which result from teething last from three to

four days. Then, as the tooth slowly pushes through, the symptoms subside, although the baby may not gain in weight for from two to three weeks.

Treatment of Teething

During the period of teething, no attempt should be made to increase the quantity of food, but if there seems to be much disturbance, particularly diarrhea or vomiting, the bottle fed baby should have his food diluted with from one-fourth to one-third water while the breast fed baby should receive at least a one ounce bottle of water immediately after each feeding. The baby's gums should be rubbed from three to four times a day, the finger of the mother or nurse being used for this purpose. The hands must be washed thoroughly before the finger is inserted into the baby's mouth. No other treatment is necessary.

Early Care of the Teeth

As soon as the teeth have appeared they should be washed three times a day with the following method. A piece of sterile absorbent cotton should be wound around the little finger of the mother or nurse. This should be dipped in boric acid solution, and the teeth wiped gently on all sides, using a stroking motion from above downward for the upper

teeth, and from below upward for the lower teeth. At the end of the second year the teeth may be brushed with a very soft brush, still using the boric acid solution. By the time the child is three years old he may be taught to use the toothbrush himself.

One of the best means of cleansing the teeth is by mastication. This also makes them stronger, and promotes their growth. Fairly complete mastication is not possible until the child is from fourteen to sixteen months old, but previous to that time some food other than milk is needed. The child may have a piece of dry bread or zwieback or a crust of bread when he is nine months old. Such a crust will take the place of the ordinary teething ring and help relieve the irritation of the gums caused by teeth that have not yet come through. Teething rings are not permissible unless they can be kept absolutely clean. The same may be said of any toys which the baby may try to put in his mouth.

Little babies have very little saliva. It first appears between the third and fourth months, when it is apt to be rather excessive. In fact, the baby does not swallow it all, but allows a good deal to run out of the mouth, which results in "drooling." There is nothing to be done for this condition except to keep the baby as clean as possible, and the condi-

tion tends to correct itself as the child grows older.

HEAD

At birth the baby's head has two soft spots, one across and just above the brow, and about one and a half inches in diameter, the other (much smaller) at the back of the head where the bones join. These two soft spots are called the "anterior fontanelle," and the "posterior fontanelle." The bones surrounding the posterior fontanelle close in about six weeks. The soft spot in front of the head persists and is not entirely covered by the bones until the child is about eighteen months old. If it remains open at the end of two years it is probable that the baby is affected with rickets, and should receive medical attention.

HAIR

Many babies are born with the head covered with hair. This is apt to come out during the first few weeks or month. Occasionally babies will become quite bald on the back of the head from pressure against the pillows. New hair comes in about as rapidly as the old hair is lost. It may or may not be of the same color.

SKIN

The baby's skin is quite pink at birth. Within a short time it changes to the normal

ruddy color. The body is covered with a soft down at birth, which soon disappears. Perspiration is not common until the baby is several weeks old. During the first week or ten days there may be a slight jaundice, the skin becomes yellow. This is not uncommon, and should occasion no alarm. Sometimes the skin of a very young baby comes off in fine flakes, leaving new skin underneath. This may be the result of a rash which is due to irritation by the underclothing, or too much clothing. It needs no special treatment.

BREASTS

During the first few weeks of life the baby's breasts may swell and become red. They may even secrete a small amount of milk. It is important not to irritate or rub them during this period. If left entirely alone they will usually get well, but if rubbed it is possible that abscesses may form and serious harm result.

LIFTING THE BABY

Very young babies should be handled as little as possible, but it is important to remember that they should not remain in the same position for any great length of time. They may be turned from side to side in their cribs while they are sleeping, and this change in

position should be made as often as once every hour.

Young babies should be lifted by placing the left hand under the baby's back, letting the fingers come around to grasp the chest in front under the baby's left arm. The baby's head will then rest against the mother's left forearm. The feet should be grasped with the mother's right hand, and the baby lifted from one place to another in this manner. (See illustration opposite page 34).

In holding a baby, the back and head should be well supported by the mother's arm, with the hand under the child's buttocks. In this way the baby assumes a semi-sitting position and may be carried about with little difficulty. Particularly after feeding, babies should be lifted up over the mother's shoulder and held firmly against her chest with her arm. Until a baby is at least six months old, the head must be firmly supported. (See illustration opposite page 35).

Older children should never be lifted by the hands. The best way is to grasp them firmly but lightly on either side of the chest, under the arms, and lift them gently in this manner.

PREVENTION OF PROMINENT EARS

The time to prevent prominent ears is in early babyhood. Care should be taken that

when the child lies on either side of the body the ear is pressed flat against the side of the head. If there is any tendency for the ears to be at all prominent, a cap may be worn at night. In extreme cases it is permissible to use tiny strips of adhesive plaster to hold the ears back against the head, care being taken to see that the tender skin is not unduly irritated. Continuous care and observation of the position of the ears will usually result in their lying close to the side of the head. In a few cases, measures of this kind are not effective. In such instances a slight operation in after life may have to be performed in order to cure the deformity.

TRAINING OF BOWELS AND BLADDER

Training the child to use the chamber for bowel movements may be commenced as early as two months. The best way is to place the baby on a small chamber, with his back supported against the mother's knees. This should be done every morning at the same time, preferably about one hour after the first feeding, and again one hour before the evening feeding. If there is any tendency towards constipation a suppository may be used at this time to stimulate the bowel movement. The baby should be held on the chamber only five

minutes. It is probable that in the early months the results will not be very satisfactory but occasionally, within a surprisingly short time, the child will seem to realize why he is placed on the chamber, and will have a bowel movement at that time with the utmost regularity. The habit of having the bowels move at the same time each day is not only one of the methods of curing constipation, but is also a great help to the mother. Because of the cleanliness of the diapers, chafing is less apt to occur, and the regularity of the bowels prevents many bowel disorders.

Training the Bladder

Training of the bladder is not as easy as training the bowels, but systematic attempts may be made at about three months of age to train the child by placing him on the chamber four or five times a day, with his back well supported. This should be done at regular hours, preferably immediately after feeding. While some children take a long time to learn the meaning of this, some learn very quickly. Passing of the water may sometimes be stimulated by turning on a faucet so that the sound of running water may be heard, or a cloth may be dipped in warm water and gently squeezed over the lower part of the baby's

abdomen and external genitals. This will sometimes stimulate passing of the urine.

Suppositories

In cases of habitual constipation, and occasionally to establish the habit of regular bowel movements, the use of suppositories is permissible. In general, however, they should not be used indiscriminately. Mechanical aid of this kind in emptying the bowels is apt to lessen the muscular power of the rectum and if their use is long continued the result is to encourage constipation rather than to cure it. Occasionally, however, suppositories are quite necessary, and in general they are better for stimulating bowel movements than the use of any drug, or even rectal enemas. Suppositories may be made by whittling out a piece of pure white castile soap, about the size of a lead pencil, and one and a half inches in length. The end which is to be inserted into the rectum should be tapered off slightly, and the whole moistened with warm water, then inserted gently into the rectum. Care should be taken that no force is used. Gluten suppositories and those made of cocoa butter are for sale in practically all drug stores, and have the advantage of being non-irritating. If suppositories are to be used with any frequency,

either the gluten or cocoa butter types are recommended.

Rectal Injections

Injections, or enemas as they are sometimes called, are useful in removing all fecal matter from the lower bowel, but they should not be used with any frequency or as a regular method of relieving constipation. The best method is to place the baby on his left side, near the edge of the bed. A rubber sheet should be placed under the buttocks. An ordinary fountain syringe with a small sized rectal tip may be used. Warm soapsuds or a solution of a tablespoonful of salt added to a quart of warm water should be placed in the bag, which must be hung not more than two feet above the level of the baby's head. The rectal tip should be greased with vaseline, the water should be allowed to run through, and the tip should then be inserted gently into the baby's rectum. Probably not more than half a pint of the solution may be injected at any one time. The tube should then be withdrawn gently, and the child's buttocks held firmly together for a few minutes, causing the solution to be retained in the lower bowel. The baby may then be placed in an upright position on a small chamber with his back firmly supported. The water will then be expelled,

bringing with it some feces and occasionally some gas.

Irrigation of the Bowels

Irrigation of the bowels is of great use in certain forms of bowel trouble or to remove poisonous or irritating matter from the bowels when the child has convulsions.

Method of Giving Irrigation

Place the baby on a table or bed which has been covered with rubber sheeting. The sheeting should extend over the side of the bed and be brought together so as to form a trough which reaches into a bowl placed on the floor at the side of the bed. The child should lie on his back, with legs flexed and buttocks extending over the edge of the bed or table. An ordinary fountain syringe should contain the solution to be used. It is made of soap-suds or a solution of a tablespoonful of salt to a quart of water, at a temperature of 90 degrees Fahrenheit. The tube of the syringe should be connected with an ordinary soft rubber catheter. This may be done by using a glass medicine dropper which has one end inserted in the end of the tube and the other in the end of the catheter. The latter should be greased with vaseline and the water from the bag allowed to flow through it. As soon



Proper Method of Lifting Baby



Proper Method of Holding Baby. This Also Shows Card Board Cuff in Place

as the water begins to flow the tube should be pinched or bent and the end inserted gently into the rectum. The ankles of the child should be grasped and the buttocks lifted up while the catheter is being inserted. Then the water should be allowed to flow in gradually. As it does so it will dilate the bowels, and the catheter may be pushed in. No force should be used for this purpose. Generally the catheter can be inserted for about ten to twelve inches. If it is done too hastily it will turn on itself, and the water will not flow. After about a pint of water has gone into the rectum, it will begin to return, and should be allowed to run in through the catheter and out through the bowel at the same time, until at least two quarts of the solution have been used. If the bowels contain much feces it may be necessary to remove the catheter and allow the bowels to move. It may then be inserted again.

BAD HABITS

Pacifier

The pacifier which is so often used to quiet babies not only tends to the formation of bad habits, but will produce permanent deformity. There is every reason why the pacifier should not be allowed. It is practically impossible to keep it clean, and a dirty article of this

kind, put into the baby's mouth, will almost inevitably carry with it some form of infection. The results are, first of all, attacks of colic which are due to the swallowing of air, and sore mouth which may be due to infection or irritation. More serious consequences are the resultant thick lips, protruding upper lip, irregular teeth and stimulation of the growth of adenoids.

Thumb Sucking and Nail Biting

These two bad habits are comparatively common. Thumb sucking will begin very early in infancy, and last throughout childhood if something is not done to prevent it. Nail biting occurs more often after the first year. The results of thumb sucking are the same as those which come from the use of the pacifier, while the results of nail biting are the cultivation of a nervous habit and mutilation of the fingers and nails. Some little babies will suck the edges of the blanket or twist at their clothing and suck it.

Treatment

The methods of preventing these habits are purely mechanical. There are on the market types of aluminum hand mits which have a broad cuff of muslin. These are placed over the baby's hands, and the cuffs pinned

to the baby's sleeves. He can thus move his hands freely, but cannot scratch his skin or get his fingers into his mouth. These mits are excellent to use if the child has any skin disease when it is desirable to keep him from scratching.

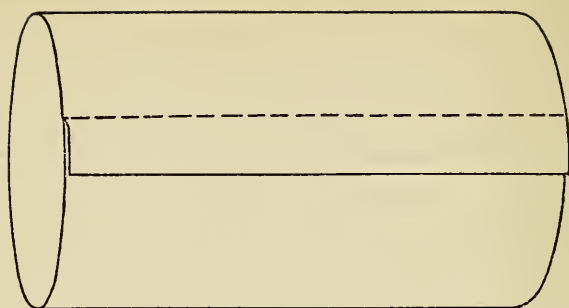
Probably the best method of preventing thumb sucking or nail biting is the use of a little cuff over the elbow. This is made of a roll of cardboard large enough to slip easily over the arm, and about four or five inches long. (See pattern on page 38).

The edges of the cardboard may be fastened with adhesive plaster, and the roll pinned to the child's sleeve, just above the elbow. The use of this cuff keeps the arm fairly stiff, but still allows a slight motion of the elbow joint. The child can play perfectly, but cannot put his hands into his mouth.

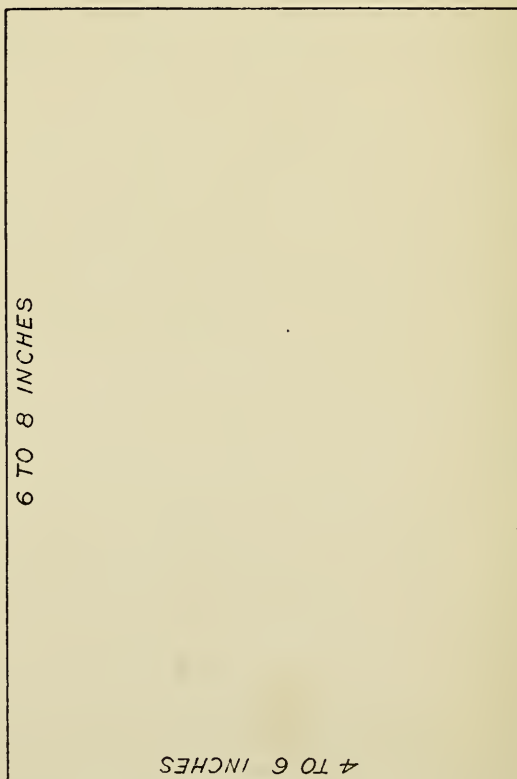
The use of drugs or bitter substances such as quassia or aloes on the end of the thumb or fingers is not advised. While the drugs may make the child nauseated, that is generally their only effect, and their use seldom breaks up the habit.

Masturbation

The practice of masturbation is not common in children less than a year old, although it has been observed in children under that



4 TO 6 INCHES



6 TO 8 INCHES

4 TO 6 INCHES

Cardboard to Prevent Thumb Sucking

age. When the child begins to walk about, however, he may begin this habit unconsciously, therefore its symptoms and treatment should be known.

The practice of masturbation consists in irritating the genital organs by rubbing with the fingers, rubbing the thighs together, or rubbing the genital regions against some articles. The symptoms noticed are that the child's face becomes flushed. This is followed closely by the appearance of perspiration on the head and forehead. Later the child becomes drowsy and usually goes to sleep. If the habit is repeated the child will become nervous and restless, generally showing marked irritability. Sleeplessness is common, and frequently there are marked signs of anemia and loss of appetite.

Treatment

The treatment consists in the use of thick diapers in younger children so that the genital organs are protected. Older children should be watched during the daytime. If the habit occurs only at night, it is well to put the child to bed with a little pillow between the legs so that there may be no mechanical irritation. It must be remembered that children do not consciously form this bad habit at so early

an age. It is not possible, of course, to use any treatment or correction of a moral nature until the child is older.

CHAPTER III

CLOTHING

The main requisites for baby's clothes are that they shall be loose, light in weight and that no irritating material shall come into contact with the skin. The little body needs freedom for growth, and muscular development should never be restricted by the weight of many garments.

When the baby is born, the first outfit should be ready. The number of garments listed below may be increased, if desired, but those indicated should be sufficient for all purposes during the first year. With this number washing need not be done more often than twice a week, except in the case of diapers, which must be washed every day.

- 6 Overslips or dresses
- 4 Gertrude petticoats
- 4 Shirts
- 3 Abdominal bands for the first month
- 3 Knitted bands with shoulder straps for second to sixth months
- 4 Nightgowns
- 4 Dozen diapers
- 3 Pairs soft wool socks for cool days
- 3 Pairs light weight merino stockings for winter
- 1 Wrapper
- 1 Cloak
- 1 Cap

(See illustration opposite page 50.)

*SPECIAL DIRECTIONS FOR MAKING BABY CLOTHES.**Overslips or Dresses*

These should be twenty-two inches long from neck to bottom of hem. There should be at least two inches leeway on each side of the underarm seam. Either in the kimono or sleeve style of dress, the armhole should be large and the seam should be opened and sewed down or featherstitched so that it may not form a ridge. Embroidery or lace should not be used, either on the neck or on the sleeves, as it may cause a distressing irritation of the skin. For the same reason, the baby's clothing should never be starched. The material for these slips may be either batiste, fine muslin, nainsook or longcloth. The neckband and sleeves should be made very wide, without any trimming. For a new baby a ten inch neckband is none too wide, while the cuffs of the sleeves should be wide enough so that they may slip on and off over the hands with perfect freedom. Drawstrings in neckband and cuffs give the best service, for in this way they may be made as loose or as snug as desired. If the dresses are made in the manner described, it will not be necessary to make any new short clothes. As the baby grows the clothes will become correspondingly short-

er, and the twenty-two inch length should last throughout the first year.

Change in Length of Baby Dresses

If dresses longer than the twenty-two inch length are used when the baby is very young, they should be changed for short ones when the baby is four months old. As soon as the baby begins to creep, one-piece rompers are advised. They may be made of chambray, or other easily washed material. In them the child can play about as much as he pleases.

Petticoats

The petticoat should be slightly shorter than the dress. They are best made in the gertrude style, that is, not gathered in at the waist line, but made on the lines of a princess dress, fastened on each shoulder with two snap fasteners. They are made without sleeves, and with one seam under each arm. In winter, the gertrude petticoat may be made of all wool flannel, or, preferably, of cotton and wool flannel. In hot weather the petticoat need not be worn.

Shirts

The shirts should have long sleeves and high necks. A mixture of silk and cotton, or plain cotton, is advised. Open mesh cotton goods

is excellent for underwear. If the baby is undersized and delicate, it may be necessary to use a mixture of cotton and wool in the underclothes for the first few months. All-wool shirts are never advisable.

Abdominal Bands

These bands should be made of soft, unhemmed flannel, six inches wide by twenty inches long. Two tapes should be sewed on, six inches from one end. Two more tapes should be sewed on, eight inches from the other end. After the band is in place the opposing ends of the tapes should be tied loosely. The tapes may be omitted and the bands sewed on, but they should never be pinned. Care must be taken to see that the band is not wide enough so that it reaches too high under the arms or down around the thighs, so as to constrict the legs. It must never be wrinkled, so as to irritate the skin, nor must it be fastened so tightly that there will be pressure on the baby's chest and abdomen, with consequent interference with the breathing.

Knitted Bands

Flannel bands should be worn for three or four weeks, and may then be changed for knitted bands. These may be made of silk and

cotton. Except in very cold climates, and in exceptional cases, wool is not advised for baby's underclothing. It is apt to be irritating to the tender skin, and the baby who wears wool underclothing may easily be kept too warm. For the new born baby the second size knitted band is best, care being taken to see that there are no rough seams.

Stockings

If the baby's feet are warm, stockings are not needed. If there is any tendency for them to become cold, however, soft knitted or woolen socks may be used during the first few months. As soon as the baby's dresses become short enough so that the feet are exposed, long white merino stockings, which should be pinned to the diaper, are advisable. When the baby begins to walk, its feet should be covered with soft moccasins, made with the seams on the outside. There should never be any pressure on the feet. Shoes should not be worn until the child is at least one year old, and then only those made of extremely soft kid, with soft, flexible soles, should be worn. After the baby is a year old, and begins to walk, a shoe with flexible but thicker sole is advised. All shoes must be broad, and at least one size too long. Under no circumstances should heels be worn. For out-of-doors

in wet or cold weather, rubber or fleece lined arctics are necessary.

Shoes with stiffened ankles are not advisable. Babies' muscles weaken with disuse and strengthen with use. If the ankles seem weak, and the child falls readily because of this fact, the feet and ankles may be massaged with olive oil every night and morning, and the child encouraged to use them.

Nightgowns

Until a baby is a month old, no different type of clothing is needed at night. At the end of a month, the child should be undressed at night, and given an entire change of clothing. The nightgowns should be at least thirty-two inches in length, long enough to reach at least ten inches below the feet. A very good type for winter use is the one with drawstring in the hem, or the one which folds over at the bottom and fastens with snaps. Such nightgowns keep the baby's feet warm and allow him to kick without having the nightgown pull up around the body. When the age is reached where rompers are worn in the daytime, night-drawers with feet attached will be found comfortable at night. The nightgowns may be made of wool flannel or a mixture of cotton and wool. In hot weather, muslin is advisable.

Diapers

The diapers used during the first two or three months should be 18 x 36 inches in size. Later those 22 x 44 inches will be found more comfortable. They should be made of cotton birdseye. Small squares of cloth of several thicknesses may be placed inside the diaper to receive the discharges from the bowels. These cloths should be thrown away as soon as they are soiled, and their use will save much laundry work.

Rubber Drawers or Rubber Diapers

The use of rubber drawers or rubber diapers is not advised, although there are some instances in which their use seems unavoidable. If the baby is taken on a journey, or to a place where his diaper cannot be changed for several hours, a rubber diaper may be placed over the regular diaper in order that the rest of the clothing may not become soiled. The rubber drawers, which are usually made of oilskin or thin rubber tissue, are used for a similar purpose. The use of any watertight article of this kind means that the air is practically excluded from the baby's skin, and in addition the parts are allowed to remain in contact with the urine and feces for an undue length of time, thus causing a marked irrita-

tion of the skin, therefore rubber drawers or rubber diapers should not be used except in case of great emergency, and then only for short periods of time.

Wrapper, Cloak and Cap

These should be made in accordance with the needs of the weather. A silk cap lined with flannel is advised. This is soft and warm, but light in weight. The wrapper may be made of flannel or lightly padded silk. A small knitted shawl or blanket, about a yard square, is useful for wrapping loosely about the baby during the first month.

Difference Between Summer and Winter Clothing

The indoor clothing during the entire first year should not vary with the seasons, either in kind or in amount. The actual temperature of the day, not the time of year, is the guide in deciding how much clothing the baby should wear. In winter, the outer clothing must be sufficient to give warmth without weight. Over-dressing of young children is a tendency that must be guarded against. Babies are very sensitive to heat, and too heavy clothing may be the cause of illness. Much more harm is done by too much clothing than by too little.

Clothes are of proper weight when the baby is comfortable. The best indication is the presence or absence of perspiration and the temperature of the hands and feet. If the baby needs extra covering in the house, a soft knitted jacket may be put on. When it seems wise to use a blanket, it must not be wrapped too tightly. Continuous pressure against the child's body is harmful. When the baby or young child is taken out-of-doors in winter, a sweater and long drawer-leggings may be put on over the indoor clothing, in addition to the cap and coat. All such extra clothing should be removed as soon as the child comes indoors.

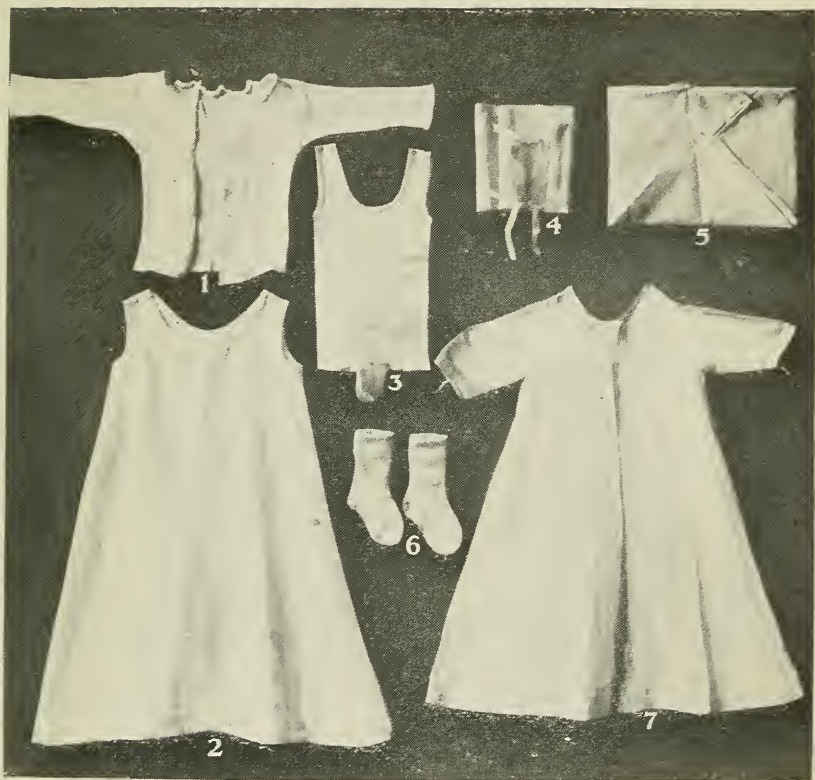
In the summer, if the weather is warm or hot, the baby needs to be dressed only in his undershirt, diaper and outside slip. On cool days, the flannel gertrude petticoat may be added. Remember that babies suffer from heat more than adults do, and their clothing must be extremely light in weight whenever the temperature goes over eighty degrees.

How to Dress the Baby

It is best to place the baby on some flat surface when dressing him, such as a bed or low table, which should be covered with a soft blanket. In this way the baby is more easily and safely handled, and the mother has

much greater freedom of action than if she used her lap for this purpose.

The band is put on first. It must never be tight. It should be tied on one side or sewed over and over with large stitches of coarse white thread. Next comes the shirt, then the diaper, which is to be pinned firmly with large safety pins to the front and back of the shirt. Next the stockings, and finally the flannel petticoat and slip should be pulled on over the baby's feet. They should never be put on over his head. With a little practice, very little turning of the baby is necessary, provided the clothing is placed conveniently at hand. It is well to have all the clothing ready on a rack so that it may be available as soon as the baby has finished his bath and is ready for the daily dressing.

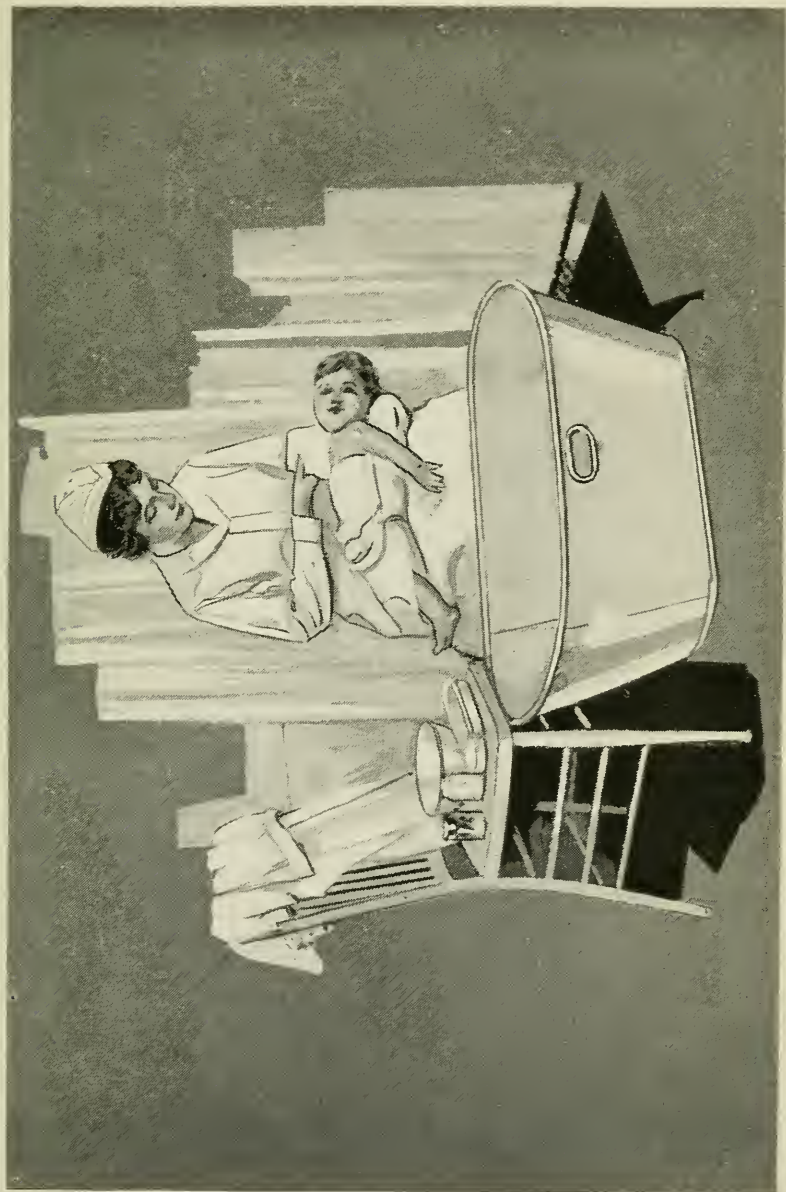


Baby Clothes

1. Shirt. 2. Gertrude Petticoat. 3. Knitted Band With Shoulder Straps. 4. Abdominal Band for First Month. 5. Diaper. 6. Socks. 7. Overslip or Dress.



Courtesy of Today's Housewife
This Illustration Shows the Way to Put the Baby in the Tub



After the Bath He is Wrapped in a Soft Blanket
Courtesy of Today's Housewife

CHAPTER IV

BATHING

During the first ten days of life the baby may be given only sponge baths. The tub bath must not be used until the cord has dropped off, and the navel entirely healed.

Equipment for Bathing the Baby

The following equipment is needed for the baby's bath:

A rubber sheet, 36 inches square, to place over the lap of the mother or nurse.

A portable bathtub, which should be placed upon a low stool.
Two basins, one for warm and one for cool water.

A soft blanket upon which to place the baby after he is removed from the water.

Several old, soft cotton or linen towels.

Two sets of washcloths. The different sets may vary in material, but both should be soft. One set is to be used for the face and head, and the other for the rest of the body. They may have borders of different colors so they may be easily distinguished from each other.

A bath thermometer.

A tumbler of boric acid solution (for method of preparation see "Nursery Remedies," page 182.)

Absorbent cotton.

Castile soap.

Talcum powder.

Temperature of the Room

The room in which the bath is to be given should be kept at about 70 degrees Fahrenheit. Drafts must be avoided. If there is an open

fireplace, the bathing equipment should be arranged in front of it, and the bath given there. (See illustrations opposite pages 51 and 66.)

Temperature of the Water

For the first few weeks the temperature of the bath should be 100 degrees Fahrenheit. From the first to the third months it may be reduced to 98 degrees. After six months it should be 95 degrees. During the second year the bath may be given at a temperature of from 85 to 90 degrees. (See illustration opposite page 66.)

Time of Bath

The bath should preferably be given in the morning, at least one hour before feeding. If more convenient, the daily bath may be given at night. The point to be remembered is that after the bath the baby should be fed, and then put into his crib to sleep.

Method of Giving Bath

Fill the bathtub two-thirds full of water. Undress the baby by placing him on his stomach. Unbutton the clothing in back, turn him over once and remove the clothing down over the feet. The band and shirt may then be taken off easily. The baby should be wrapped immediately in a flannel apron.

Sponge Bath

For the sponge bath during the first ten days, the two basins should be used, both filled with warm water at the temperature mentioned. Only one part of the body should be washed at a time: first, the head, face and ears should be washed with a soft cloth, using soap and water, then rinsed off, using the second cloth and the other basin of water for this purpose. Care must be taken to see that the soap does not get into the baby's eyes. The face and head should then be patted dry gently with a soft towel. After that each part of the body in turn should be covered with a little soap rubbed on the washcloth, and then rinsed off with water from the second basin. Each part should be dried by patting gently before another part is washed.

As soon as the cord has dropped off, the tub bath may be given.

Tub Bath

The proper method is to wash first the face, head and ears in the manner already described. The body should then be rubbed all over with soap and water, the back and head of the baby being supported with the left hand of the mother or nurse, and the ankles grasped with the right hand, thus placing the baby in

a semi-reclining position. It should then be lowered gently into the tub and washed gently until all the soap has been removed. The baby must not be left in the tub longer than three or four minutes. Prolonged bathing is not desirable. The child is then lifted out of the tub in the same manner, and placed on a towel placed over the rubber apron on the mother's lap, covered immediately with the towel and gently patted dry. The skin of young babies must never be rubbed.

After the baby is completely dry, a good powder such as talcum, or a mixture of equal parts of starch and talcum powder, should be sprinkled lightly over the body, particularly in the folds of the skin and around the genitals.

When the Tub Bath Should Not Be Used

Very delicate or feeble babies usually do not react well to tub bathing, and in such cases the sponge bath should be used instead. This is true also of babies suffering from eczema or other skin diseases, when water often irritates the skin. A physician's advice should be obtained about bathing a baby who has a skin disease or irritable skin. A daily rubbing with olive oil is sometimes helpful, or the special baths may be used as hereafter described.

Care of the Genital Organs

Particular care must be taken of the buttocks and genitals, because they become chafed so easily. They must be washed after each wetting or movement, and then covered lightly with powder. Diapers must not be used a second time without being washed. If chafing occurs, it may be necessary to see that the parts are not wet at all, until they are healed. In such cases the baby may be given a sponge bath. The genitals are to be cleaned with olive oil or sweet oil, and a little absorbent cotton after each movement, then covered with starch or talcum powder or powdered stearate of zinc. The latter is particularly good because, besides adhering closely to the skin, it is waterproof and very soothing. In boys, particular care must be used to see that secretion or other foreign substances do not collect in the foreskin. The foreskin should be pushed back gently twice a week, no force being used. If there is any irritation of the foreskin or penis, or if the foreskin cannot be pushed back easily, a doctor should be consulted.

Circumcision

Indications that circumcision is needed are difficulty in passing urine, irritation of the

penis or inability to push back the foreskin. The matter of whether or not circumcision is indicated should always be left for the physician to decide. It is possible sometimes for the latter to stretch the foreskin so that it may be retracted, but this must never be tried by anyone other than a physician.

Care of the Diapers

The diaper is an important part of the baby's wardrobe. If it is adjusted properly and kept clean, it adds much to the comfort and health of the baby. In putting on the diaper, remember that it should not be tight around the stomach or legs. If any ridges are seen at these places when the diaper is removed, it is a sure sign that there has been too much pressure. A diaper that has been soiled must never be used a second time without being washed. Soiled diapers should be removed immediately, the baby's buttocks and genitals washed gently with soap and water or cleansed with olive oil, and then dusted with talcum powder. The diapers should be placed at once in a pail of cold water, which must be kept covered. Once a day the diapers should be rinsed out, then boiled in soapsuds for thirty minutes, rinsed thoroughly, and, if possible, dried in the sunlight in the open air.

Care of the Eyes

At the time of the bath the eyes should be washed with a piece of absorbent cotton, wet with boric acid solution which is gently squeezed, allowing the solution to drip into the baby's eyes. The child should be placed on the right side when the right eye is being washed, and on the left side when the left eye is being washed. The point to be remembered is that the solution should always drain from the nose to the outer side of the face, so that there may be no contamination of one eye from the secretions of the other. The absorbent cotton that has been used once should never be replaced in the boric acid solution, but a fresh piece must be used each time. If the lids of the eyes are stuck together, the edges may be greased with a small quantity of white vaseline. If there is any secretion, a doctor should be consulted without delay, as appearance of this pus may indicate the presence of a very serious disease of the eyes, which in some cases leads on to permanent blindness.

Care of the Nose, Mouth and Ears

No attention need be paid to the nose unless secretion is noticed. Then the nostrils may be cleansed gently by twisting bits of cotton into tiny pledgets, and wiping out carefully

that part of the nostril which is visible. No force should be used, nor should any toothpick or other instrument be applied.

The baby's mouth should not be washed out at all, except under the doctor's direction. If milk seems to remain in the mouth after feeding, one or two teaspoonfuls of water given to the baby will rinse it out and provide all necessary cleanliness.

The ear canal may be cleansed occasionally by wiping gently any excess wax from around the opening. Here again no instrument should ever be inserted, as serious danger may result from any such procedure.

Care of the Umbilicus or Navel

Before the cord falls off, care must be taken that the dressing does not become wet unnecessarily. It need not be removed every day, but if any sign of secretion is shown it may be necessary to remove the old dressing, cover the stump of the cord with boric acid powder and apply a new dressing. If, after the cord has fallen off, there is a tendency for the navel to protrude, a pad of cotton may be placed over it, under the abdominal binder. If this does not remedy the trouble, a more permanent dressing of adhesive plaster should be used. This is prepared by taking a strip of adhesive plaster two inches wide and eight

inches long. In the center place a cent, a quarter or a smooth button which is considerably larger in size than the protrusion. Over this place a small strip of adhesive plaster with the adhesive side next to the article, so that it may be covered completely, and the plaster at that spot will not adhere to the baby's skin. The strip should then be placed so that the coin or button will come directly over the protrusion of the navel, which must be pressed back gently while the band is being adjusted. The adhesive strip may then be drawn firmly across either side of the baby's abdomen. This will remain in place for a considerable period of time, and usually is little affected by water, although prolonged tub baths are not advised while it is worn. After it has served its purpose it may be removed by the use of alcohol or ether or by scrubbing with soapsuds.

Nails

There is no reason why a baby's nails should not be cut. It is better to keep them short.

Warm and Cool Baths

The warm bath should be used as a sedative. It cleanses the skin and keeps it active so that the waste of the body is eliminated. It reduces nervous symptoms, and is excellent when the child is restless and unable to sleep.

The cool bath, on the contrary, is stimulating and should not be given just before sleeping time except in very hot weather.

Alcohol Baths

In case of fever or in very hot weather, an alcohol bath is refreshing. Two tablespoonfuls of alcohol are added to a basin of water at a temperature of about 75 degrees Fahrenheit. The methods given for a sponge bath should be followed. Alcohol baths may be given two or three times in twenty-four hours.

Bran Baths

These baths are of particular value in the case of babies with delicate skin, or those suffering from prickly heat. A cupful of bran should be put in a cheesecloth bag, and then squeezed in a tub of water until the latter is of a milky color. The temperature of the water should be from 90 to 95 degrees Fahrenheit. The baby is to be placed in the bath for three or four minutes and bathed gently. There should be no hard rubbing, and no soap should be used.

Soda Baths

For bad prickly heat which does not yield to the bran bath, or in case of hives, a soda bath may be used with some temporary

benefit. Two heaping tablespoonfuls of baking soda should be put in a tub of water, and the same method of bathing used as has been outlined for bran baths.

Mustard Bath

In case of a sudden convulsion in a baby, the mustard bath is a first aid. A level tablespoonful of mustard should be mixed in a cup of water until it is free from lumps. Then it should be stirred thoroughly into a tubful of water at a temperature of 100 degrees Fahrenheit. Care must be taken that none of the flakes of mustard are left floating in the water, as they are apt to irritate the baby's skin and cause burns.

A bath of this kind should be of about five minutes duration. When the baby is taken out he must be wrapped immediately in a flannel blanket with a hot water bag placed at his feet. There are other methods of treating convulsions, such as seeing that the bowels are emptied at once by means of an enema or an injection, but the mustard bath is a family remedy of first importance. Convulsions in a baby are apt to terrify the young mother, so she should know what to do at once. Remember that this bath may relieve the symptoms, but cannot be relied upon as a cure. Send for the doctor as quickly as possible.

Salt Baths

Salt baths are cooling, and in certain cases of delicate skin can be used when the ordinary soap and water bath is inadvisable. They are prepared by adding a teacupful of sea salt to two gallons of water. They may be given either in the tub or as sponge bath.

Baths for Older Children

As soon as the baby is old enough, let him take part in the bathing process. Babies usually enjoy being in the water, and as they grow older, the splashing about and helping to bathe themselves is not only fun, but helps them to an appreciation of the comfort of the daily bath, and this is one of the life habits that is especially health-giving.

CHAPTER V

FRESH AIR, SLEEP AND QUIET,
EXERCISE

FRESH AIR

Fresh air is as essential as food for the growing baby. Fortunately it is one of the necessities that is within the reach of everyone. Air not only gives babies many of the elements that are needed for their growth, but its action on the body aids in the elimination of some of the waste products. The growing child needs much more pure air in proportion to its size than the adult does, just as it needs more food in proportion to its size, therefore it is important that babies should become accustomed just as early as possible to being outdoors or in a thoroughly ventilated room the greater part of the day. Mothers sometimes think they cannot take their children outdoors often, because they take cold if they go out-of-doors frequently. Fresh air prevents colds; it does not give them. An abundance of good air makes the digestion better, improves the appetite, and in every way conduces to good health. The delicate child needs fresh air even more than the healthy baby does.

Indoor Airing

The nursery should be kept thoroughly ventilated from the time the baby is born. To do this, one of the best ways is to open the window slightly at top and bottom, using a window board in the lower sash. The room should be kept as nearly as possible at a temperature of from 65 to 68 degrees, and the thermometer from which the temperature is read should be placed on the wall at the head of the child's bed.

Temperature of Sleeping Room

The temperature of the nursery at night should never be higher than sixty degrees. This may be reduced gradually, and the baby may sleep in an unheated room after it is six weeks old if care has been taken to accustom him to the low temperature.

Methods of Indoor Airing

When the weather is extremely cold, with rain or snow, sharp winds or melting snow on the ground, it is best to give the baby his airing indoors. To do this he should be dressed in the same way as if he were going out, then placed in the baby carriage with the usual warm robes over him. If it is very cold outdoors it is advisable to use a hot water bag at

his feet. The windows in the room should then be opened wide, and the door closed so there will be no direct draft. The baby may be wheeled about the room or left near the open window, if the wind is not too strong. Care must be taken that the sun does not shine into the baby's eyes. For the first airing indoors, fifteen minutes is long enough. After that the time may be increased gradually until it covers at least two hours, both in the morning and afternoon.

Out-of-Doors

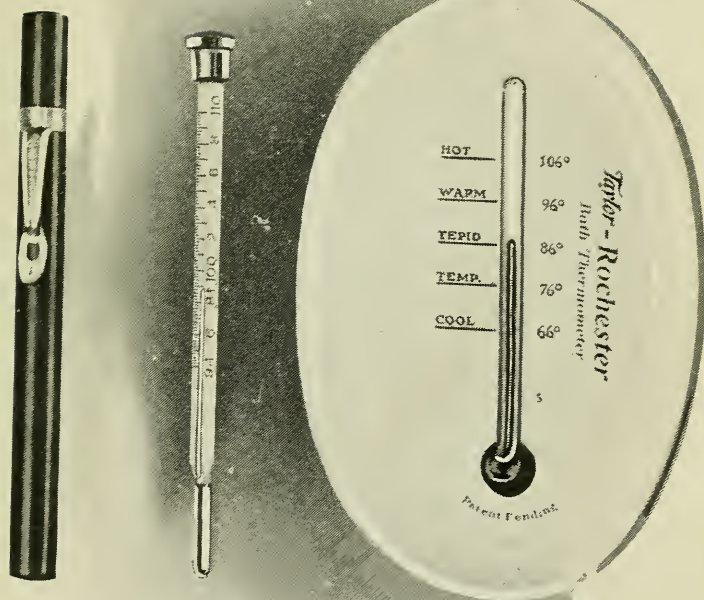
In summer and in warm climates, the baby may be taken out-of-doors at the end of one week. During the cool days of spring and fall, the outdoor airing is best postponed until the baby is a month old. In the winter, much depends upon the severity of the weather. If the days are mild, the baby may be taken out at the end of one month; if the weather is severe, it is best to wait until the child is two months old. The outdoor airing is not advised until the child is five months old when the weather is below the freezing point, and it is equally unwise to allow a child less than a year old to play outdoors if the temperature is below 20 degrees.

When a little child is taken out-of-doors in a carriage, care must be taken to see that his

hands and feet are warm. On the other hand, there should not be so many clothes that the child will become overheated, for this is one of the surest ways of catching cold. The best time for a baby to be taken outdoors depends upon the season. In the winter and early spring, between 10 a. m. and 3 p. m. is the best time. In summer and early autumn, care must be taken that the baby does not go out in the heat of the day, unless there is a shady place or a porch that is protected from the sun where he may stay. It is necessary also to see that the baby is not placed where there are any strong winds. In summer, the crib or carriage should be carefully protected with mosquito netting.

Sleeping Outdoors

In climates that are mild or fairly mild, babies may become accustomed to sleeping outdoors at night from the time they are a month to six weeks old. However, this a matter which must be adjusted to the individual needs and to the weather conditions. The baby should not sleep out if the weather is very cold, or if there is rain or snow, or high winds. Except in bad weather it is an excellent thing to accustom children to sleeping outdoors as early as possible, and the baby can sleep out, sick or well, if it is properly



Clinical Thermometer and Bath Thermometer



Home Made Hess Refrigerator

clothed. A low temperature induces calm sleep. The baby will then keep under the bed clothes, and is less apt to be restless. Out-of-door sleeping is particularly good for nervous children.

SLEEP AND QUIET

The new-born baby sleeps nearly all the time. For the first two or three months he may sleep as much as twenty-two hours out of the twenty-four, and up to six months of age he should sleep eighteen hours out of the twenty-four. After six months, the normal baby will sleep from six o'clock in the evening to six o'clock in the morning without awaking, and at this time a two-hour nap in the forenoon and afternoon are necessary. Care should be taken that the afternoon nap does not end later than three o'clock, otherwise the baby will not go to sleep again at six o'clock. At the beginning of the second year it will be necessary to omit the forenoon nap.

How to Put the Baby to Sleep

The baby should always sleep alone on a bed with firm mattress, preferably of hair, a thin pillow, and bed clothing that is light and warm, but of little weight. After the baby is in bed the outer bed clothing should not be tucked in too tightly. It is best to leave it

rather loose, and pin it down at the sides to the mattress with large safety pins made for this particular purpose. In this way there will be plenty of room for kicking about and freedom of action, yet the bed clothing will not be thrown off.

After the last feeding at night, with the appetite satisfied, the baby should be put to sleep in a dark, well-ventilated, quiet room, then left alone. While emphasis has been placed upon the need of a quiet room for the baby, it must be remembered that the ordinary house noises may go on as usual, for there is no reason why the presence of a baby should disturb the ordinary household routine, provided loud, sharp and unusual noises are avoided. The baby may readily become accustomed to the ordinary noises of life from the time of birth, and it is much better that this should be so. Loud and unusual noises, however, will almost always awaken the baby, for the sleep of early infancy is light, although it may be continuous and quiet. The heavy sleep that is so noticeable in childhood does not occur much under three years of age.

Normal Sleep

The healthy baby never sleeps too much. Such sleep is usually quiet and regular, the breathing is even, the baby's color good, and

there are no sudden, jerky movements of the body. The normal baby usually awakens at the regular feeding time. If not, he should be taken up and fed when the proper time arrives. If the baby awakens before the feeding time, it is probable that the food was too weak. A little water may be given, but the regular feeding schedule should be maintained. If this is persisted in, within a short time the baby will sleep regularly between the feeding periods, except for the one hour allowed for the bath and the half to one hour for the crying which is such a necessary part of the baby's daily exercise.

The baby should not be allowed to sleep on his back. He should be turned from side to side at fairly frequent intervals, although there is no reason why the mother should try to do this during the night as long as the baby is sleeping comfortably.

Sleeplessness

One of the greatest causes of difficulty in getting a child to sleep is the formation of bad habits, such as rocking, the use of a pacifier, or taking him out of bed when he cries. If he is put in a cool, quiet room and left alone he will establish the habit early in life of going to sleep by himself. Occasionally, babies will cry. If the mother is sure there is nothing

wrong, he should be left to cry it out. This may last an hour, and in extreme cases even two or three hours, but while the struggle is exceedingly hard to bear for a night or two, if he is left alone, and no attention is paid to him, he will soon learn that he is expected to go to sleep at this time, and will act accordingly.

Less frequent reasons for restlessness are putting the baby to sleep in a lighted room or a room with bad air, hunger, thirst, indigestion due to the wrong kind of food or irregular hours of feeding, over-feeding, wet diapers, too heavy or insufficient bed clothing or physical discomfort due to cold feet, colic or pain or the pricking of an unfastened safety pin. Frequently babies remain awake because they were played with before going to bed, a habit which not only tends to sleeplessness, but which is one of the surest ways of creating extreme nervousness. All of these causes are easily removed, and can be avoided with a little forethought.

There are other causes of sleeplessness, which depend upon actual physical disease, and are therefore more serious. The child may have enlarged tonsils or adenoids which interfere with breathing, so that he is extremely restless during sleep. He may be below normal in vitality, suffering from malnutrition or

anemia, or his sleeplessness may be caused by scurvy, syphilis or tuberculosis of the hip or spine, which cause severe pains at night.

Treatment of Sleeplessness

If the difficulty is one of physical discomfort, the baby should be taken up, examined, made comfortable and then, if found to be all right, left alone until he acquires the habit of sleeping regularly. However, if the difficulty seems to be a physical disease, which can be determined only if the crying persists night after night, notwithstanding everything that is done to make the baby comfortable, and if he is being trained for good habits, a physician should be consulted and his advice taken regarding the care of the child.

Prevention of Nervousness

The basis of a large part of the nervousness which occurs later in life is laid in infancy. Adults generally do not realize the extreme instability of the nervous system of a baby. So much harm may be done by lack of care in the first few months of life that special attention should be paid to the necessity of keeping the little baby free from undue excitement. There is no reason why the child should not be accustomed to the ordinary household noises, but for the greater part of the twenty-

four hours, the baby should be allowed simply to eat and sleep, have his ordinary, normal exercise, and should be taken up only by the mother, for that essential mother care which is so necessary for the full development of any child. Throughout the period of infancy every effort must be made to see that the baby's nervous equilibrium is undisturbed. There should be no undue excitement, and no special stimulation of the baby, but there should be as much quiet and rest in peaceful surroundings as the family can possibly provide. The things which are particularly to be avoided are undue playing with little children, tossing or jumping them up and down, sudden and abrupt noises to awaken them, or to attract their attention, tickling them to make them shriek, stimulating them to laughter by sudden noises, shaking or any other form of boisterous play. If it is necessary to awaken the baby at any time, it should be done by passing the hand gently back and forth across the forehead. He will then awaken quite naturally.

All of this does not mean that the mother should not take her baby in her arms at frequent intervals. This is essential, and such attention and mother care are absolutely necessary for the baby's growth and even his life, but, with the exception of the mother, the father or the nurse, there may well be a rule

in the household that the baby is not to be handled by anyone. Many instances of acute nervousness in childhood are directly traceable to failure to adhere to this policy during the baby's first year of life.

EXERCISE

Exercise is essential, but the normal baby does not need any help in this regard. He will generally get enough by perfectly natural means. The only aid he needs is the assurance of perfect freedom of action. This is one of the reasons why the baby's clothing should not be tight. In early infancy, perfect freedom to move about and kick should be allowed for at least half an hour twice a day. If the weather is warm, or if the room can be kept at an even temperature of about 68 degrees, the baby may be undressed except for his shirt, stockings and napkin, and one little overslip. In very hot weather nothing but the napkin need be kept on. If he is put on a clean bed, or on a clean blanket spread on the floor, he will exercise by himself as much as is necessary. During this time he should be left alone. He does not need entertaining, and the kind of exercise he gets will be far more helpful if he gets it alone.

From the time of birth it is necessary that the baby does not remain too long in one

position. He should be picked up and carried about several times a day, and at all times the bed clothes should be loose enough so that he may have perfect freedom of action while in bed. Carrying the baby about is a passive form of exercise, yet one that is particularly needed in the case of weak, malnourished or sickly infants. Such babies must not be left lying in one position for any considerable length of time. They are too weak to provide their own exercise, and therefore must be carried about in order to get some physical change. In addition, such babies should be exercised twice a day by being given a mild form of massage, which is really nothing more than gentle rubbing with olive oil or cocoa butter. This may be done best after the bath in the morning and the last thing before the baby is put to bed at night.

While no baby should be induced to walk at too early an age, there is equal danger in using the baby carriage too long, and thus retarding walking. The average baby will make efforts to creep at six months. Usually the first attempt to stand alone will be made at about nine to ten months, and a month or so afterwards the first step should be taken alone. Walking should never be unduly urged. The baby's bones at this time of life are

pliable, and if weight is put upon the leg bones at too early an age bow legs are apt to result.

Little children should not be allowed to romp just before their bedtime, nor should the baby be played with except before feeding in the middle of the morning or the middle of the afternoon. As soon as the child is old enough to go out-of-doors the ordinary running about, use of the shovel and sand pile, and other simple amusements will furnish all the exercise necessary. In fact, it is never necessary to stimulate any normal child to play. The normal baby is hardly quiet a moment during his waking hours, and may be trusted to develop his muscles in the way that Nature intended. The problem of the older child is one of trying to keep it quiet, rather than stimulating it to play.

CRYING

A certain amount of crying is a normal process in baby life. At least one good lusty cry a day should be expected during the first months. The normal cry is the baby's method of exercising. It fills the lungs with air, promotes deep breathing, and in every way is stimulating and helpful. If the baby does not cry it may be necessary to make him do so. However, any prolonged crying in early infancy usually has some definite cause. It is

difficult to describe the different types of cries, but once heard, they are seldom forgotten, and there are few mothers with any experience whatever in baby care who cannot tell exactly the nature of the baby's cry.

The Normal Cry

The commonplace, normal cry, which is simply the baby's method of getting exercise for his lungs, is loud, strong and apt to be continuous. The baby may stop to draw a deep breath once in a while. Sometimes the cry develops into a scream, and the baby will become red in the face. As has been stated, this cry is necessary to health, and can be disregarded unless it lasts for an undue length of time.

The Abnormal Cry

There are many types of abnormal cries, and it is necessary for the mother to be able to distinguish between them so that she may know the types which need attention and those which need cause no concern.

Habit Cry

The most common cry of infancy is that which is due to habit, which means the desire to obtain some particular object, or because the baby has found that he will receive some

unusual attention if he only cries for it. It must be remembered that during early infancy crying is the only method the baby has of attracting attention, and if he gets what he wants when he cries for it he will learn almost immediately that he can satisfy his desires in this way. There are many things a baby wants and will cry for. It may be rocking, to be carried about, to have a light in the room, to have a bottle or any other thing that seems desirable. This crying is characteristic. It is short, sharp and screaming in character, and stops at once when the baby gets what he wants.

Cry of Anger

This is due to fits of temper. The cry is strong, very loud and violent in character. The baby kicks and throws his whole body about. There may be marked stiffening of the body or the child may hold his breath for so long a time that the face gets blue, and the mother becomes worried for fear the baby will strangle. The temper cry is much like the habit cry, in that it often ceases when the baby gets his desire. On the other hand, some babies cry for temper alone, and for no particular reason that can be ascertained. The treatment of the temper cry and the habit cry is to let the baby cry it out. This

may take from one to three hours. If the child is shut off in a quiet, well ventilated room, and is made perfectly comfortable, the mother need not be at all concerned that anything wrong will happen. There is no danger of the baby becoming ruptured if a well fitted band is worn during the first month and the ordinary knitted band for the rest of the first year. There is never any danger of a child becoming ruptured from crying after he is a year old. This treatment may seem very trying, but if persisted in, the crying periods will become shorter and shorter, until they cease altogether.

Cry of Hunger

The hunger cry is a fretful, continuous cry. It is sometimes in the nature of a whimper, never very loud, in no way resembling the lusty cry of temper. The hunger cry stops as soon as the baby is fed, but immediate feeding is wrong as a method of treatment. If the baby cries from hunger before his regular feeding time, it is an indication that the food is too weak, and that it should be increased in strength. Under no circumstances should the hours of feeding be changed.

Cry of Indigestion

One of the common cries of infancy is that of colic or indigestion. It is much like the

cry of hunger, and if gas is expelled and there is any vomiting, or if the abdomen is hard and tense, it is probable that the cry is due to indigestion or colic. If not, it may be considered as due to hunger. These two types of crying must be carefully differentiated, because while feeding the hungry baby may result simply in forming a bad habit, feeding the baby who is crying because of indigestion or colic makes the condition very much worse.

Cry of Pain

There are frequently other indications of pain besides the cry, but the latter is characteristic. It is sharp, strong, and apt to occur in spasmodic outbursts. The baby is very apt to draw up his legs, toss about on the bed and show other symptoms of marked distress, while the face and features are frequently contracted. This cry of pain is frequently a symptom of sickness. When it occurs at night, it is apt to be an indication that the baby has some definite disease such as scurvy, syphilis, or an acute bone disease; therefore, if this type of crying is persistent for any length of time, or if it occurs at night, the advice of a physician should be obtained.

Cry of Illness

There is rarely any doubt about this type of cry. It can hardly be called a cry at all. It is rather a long, continuous moaning or whining noise. It comes from great physical discomfort, and occurs frequently when children are seriously undernourished, have low vitality or when they are suffering from some chronic disease. All of these conditions require medical attention.

Other Kinds of Crying

Children may cry from a variety of causes—wet diapers, cold feet, cramped position, wrinkled bed clothing, too tight clothing, too much or too little bed clothing, or because they are actually suffering from the pricking of an unclasped safety pin. All of these matters are easy to adjust, because removal of the cause will stop the crying. The treatment of ordinary night crying is the treatment given for restless sleep, when neither is due to definite illness. The baby should be made comfortable, the clothing smoothed, hands and feet warm, napkin dry, any source of irritation removed, the room well ventilated and darkened, and the baby then left alone.

CHAPTER VI

FEEDING

BREAST FEEDING

Unless there is some direct indication to the contrary, every mother should nurse her baby. If she has taken proper care of herself during the prenatal period, and if she continues to keep herself in good physical condition, there is no reason why her milk should not be sufficient and proper for the baby's needs. As far as the baby's health is concerned, there is no argument against breast feeding and every reason why it should be carried out. The mother's milk is the natural food for her baby. It is always adjusted to the baby's age and needs, and is clean, fresh, sterile and wholesome. The breast fed baby is much less likely to become ill than is the bottle fed baby. His bones are stronger, his muscles firmer, and his teeth much more apt to be normal and to come through at the proper time. If the breast fed baby does become sick, his chances of recovery are far greater than those of the bottle fed infant.

There are other reasons why breast feeding is desirable, as far as the comfort of the mother is concerned. There is no need to prepare the milk, or to be apprehensive about changing the kind of milk. No matter where the mother

and baby go, the food question need cause no concern. There is no real substitute for the mother's milk. When breast feeding is impossible, the best we can do is to try to find some type of feeding which will agree with the baby, but this substitution always involves difficulty and readjustment, and the mother who nurses her baby is not only giving him the best chances for life and health, but is establishing between herself and her child a bond which should not lightly be set aside. It is probable that about 95 per cent of all mothers can nurse their babies if they wish to do so.

It must be acknowledged, however, that there are certain instances when it is unwise for the mother to begin or to continue breast feeding, and these must be considered.

When Breast Feeding is Undesirable

Breast feeding should not be attempted by a mother who is suffering from disease of the heart or kidneys, or from some chronic disease which is lowering her vitality. Tuberculosis and mental disease in the mother are also contra-indications for breast feeding. If the baby is extremely feeble or has been born prematurely, it may not be possible to carry on breast feeding at first, although in such instances the baby will thrive better on milk which has been milked out of the mother's

breast and then fed through a medicine dropper. If the mother becomes pregnant again, that also is a reason why she should stop breast feeding, as it may be a serious drain upon her vitality. The fact that she is menstruating, however, is no reason why breast feeding should be stopped. A change should not be made to bottle feeding simply because her milk does not seem to agree with the baby. The trouble probably is with the mother and can usually be adjusted if she pays particular attention to her diet and habits. If the milk seems to disagree with the baby for any length of time, however, and such readjustment cannot be made, the doctor's advice should be obtained, and change made to bottle feeding only if he recommends it. During a short acute illness the milk may be pumped from the mother's breast and fed to the baby without harm.

Difficulty in Nursing

From the point of view of the mother, difficulty in nursing is usually due to soreness of the nipples. This may be because proper care has not been taken of them during the prenatal period. If there should be an abscess of the breast that also is a reason why it may be extremely painful for the mother to nurse her baby, but it is not a reason why the baby

should be weaned as long as the other breast is secreting milk. On the part of the baby the reasons for difficulty in nursing are extreme feebleness or some physical deformity, such as hare-lip or cleft palate. For the feeble baby, milk may be given through a medicine dropper, and it is probable that some similar method will have to be used in the case of the child with deformity of the mouth. The latter, however, should receive the attention of a physician at the earliest possible moment.

Care of the Nipples and Breast

The utmost cleanliness must be observed with regard to the nipples and breast of the nursing mother. They should never be touched with hands that have not been washed immediately before. The mother should avoid wearing corsets which are too high and which press against the breast, but should support pendulous or drooping breasts with a well-shaped brassiere or breast binder. Immediately before and immediately after nursing, the nipples should be washed gently with boric acid solution, and between nursings they should be kept covered with sterile gauze. If there is any tendency for the nipples to crack the best treatment is to cover them with zinc oxide ointment, which should be left on between feedings, and then

removed carefully with boric acid solution before the baby is put to the breast. If the nipples are extremely painful it may be necessary to use a nipple shield. Some babies do not take kindly to such shields, and it may be necessary to milk the breast for a moment or so until some of the milk has flowed into the shield, so that the baby may get it directly from the nipple. Then he can continue to nurse without difficulty. If the nipple is cracked and bleeding, the baby should not nurse from it, but a breast pump may be used to obtain the milk, which later may be fed to the baby from a bottle.

Hygiene of the Nursing Mother

The life of the nursing mother should be as normal as possible. There is no particular diet that can be recommended. The foods that have agreed with her previously should be continued, but it is well to avoid rich foods, highly seasoned gravies or soups, pastries and similar articles of diet. Eight hours sleep at night is desirable, with a nap in the middle of the day whenever possible. There should be at least one hour's exercise twice a day, preferably in the form of walking. Late hours, worry and excitement must be avoided. There is nothing will interfere more with the production of milk than nervousness or any

marked emotion. A calm mind is as necessary as a healthy body in promoting a proper supply of breast milk. Tea or coffee need not be eliminated altogether, but may be taken in moderation. Cocoa and milk are better, if they agree with the mother. Care must be taken to keep the bowels open and regular. Bran biscuits, whole wheat bread, stewed fruits at the evening meal and fresh fruits in the morning all are excellent for this purpose.

Nursing Habits

During the first two days the baby should be put to the breast every four hours. During this time he will get only the colostrum from the mother's breast, but no food in addition is needed. One and a half ounces of warm water should be given him from a nursing bottle at least once every four hours, and may be given once every three hours if he is restless. At the end of forty-eight hours the regular feeding schedule may be commenced. It is essential to establish regular habits from the beginning of life, so the baby should be awakened at each nursing period. This is important and applies to the entire first year of the child's life, except that after the first month, if he sleeps throughout the night, it is not necessary to awaken him for the night nursing. Each

feeding should last not more than twenty minutes. The baby should nurse from one breast at one feeding, and from the other breast at the next feeding, and care must be taken to see that the breast is emptied completely. If there is any tendency for the child to go to sleep during the feeding period he should be aroused gently, but even if he does not nurse throughout the entire twenty minutes, he should be removed from the breast at the end of that time.

Position of the Baby While Feeding

While being fed the baby should lie at the mother's side, with back and head resting against her arm. Care must be taken that the head is free so that the mouth may be able to grasp the nipple without interfering with breathing. While the mother is in bed, the baby should, of course, lie down while feeding. Later, however, he may be held in the mother's lap in a semi-reclining position.

SIGNS OF OVER-FEEDING

If the baby is receiving too much or too rich milk, there is apt to be regurgitation immediately after feeding. If vomiting occurs, it is probably due to too much fat in the milk, while wind and colic probably are the result of too much solid matter or protein in the milk.

The baby is apt to be restless and uncomfortable, sleep is disturbed and attacks of colic, diarrhoea, and marked constipation are not unusual. There usually is no gain in weight. In some instances the baby will lose weight.

Treatment

In both breast fed and bottle fed babies the amount of food must be reduced and the interval between feedings lengthened. Fifteen minutes only should be allowed for nursing at the breast, while in the case of bottle fed babies either the amount should be reduced, or a formula for a younger baby should be substituted. If there is vomiting due to too rich milk, not only should the feeding interval be lengthened, but the mother should eat less meat, take more exercise, drink plenty of water and the baby should receive from one to two tablespoonfuls of water after each feeding. Colic in a breast fed baby needs the same treatment, both as to improvement in the mother's hygiene and lengthening of the interval between feedings and giving water to the baby. The mother must readjust her life so that there will be no periods of emotional excitement, worry or outbursts of temper. It is important that she should take an adequate amount of exercise, but not to the point of fatigue.

Social activities should be limited, and the diet should be simple, with nothing that will upset the digestion.

MILK PLENTIFUL, BUT POOR IN QUALITY

When the baby is receiving a sufficient quantity of milk, but it is of such poor quality that it does not furnish adequate nourishment, the symptoms are usually manifested by restlessness and constipation. While the child seems satisfied immediately after feeding, he usually shows symptoms of hunger before the next feeding is due. There usually is no gain in weight. Vomiting or any other digestive disturbance rarely occurs.

Treatment

The treatment consists in readjusting the mother's diet. She must take plenty of milk—at least three glasses a day—and should include cocoa, milk soups, cereals and eggs in her diet. She should have regular and systematic exercise, and at least eight hours sleep every night, with one rest period in the middle of the day.

MILK SCANTY, BUT OF GOOD QUALITY

When the amount of milk present in the breast is insufficient to last through a twenty-minute feeding, the baby usually manifests

some symptoms of being unsatisfied. He may be restless and fretful while nursing, and between the nursing periods usually manifests symptoms of hunger before the next feeding. There is apt to be constipation, and the baby does not gain in weight. Sleep may be disturbed. The best way to determine whether the amount of milk is scanty is to weigh the baby immediately before and immediately after a feeding. He should have received an amount of milk equal to one ounce more than his age in months. If he does not show this increase in weight after a feeding, it is evident that the milk is not sufficient, although the quality may be good.

Treatment

It may be necessary for a short time to give the baby supplementary feedings from the bottle. This should not be given in place of a breast feeding, but a small amount of milk, properly modified for the baby's age, may be given immediately after each breast feeding. The mother should not attempt to overfeed herself, but should be outdoors as much as possible, and should drink at least three glasses of milk a day or the equivalent in some form of soups, cocoa, custards, etc. Certain gruels, especially corn meal mush, are excellent for increasing the supply of breast milk.

Help may be given in producing a sufficient supply of milk by seeing that the breasts are emptied completely at each feeding. Sometimes the baby will stop nursing while some milk remains in the breast. If this happens the breast should be emptied by "milking out" the remainder. This may be done by grasping the breast with thumb and forefinger, just behind the areola which surrounds the nipple. A gentle stroking motion should then be used which will pull the nipple and areola forward gently with a movement somewhat similar to that which is used in milking a cow. The pulling must be slow and regular, and after a little practice it will be found easy to empty the breast completely by this method. It has been found by numerous studies that an empty breast tends to fill again rapidly and completely, and that if the breast is emptied at each feeding the amount of milk produced is greatly increased. On the contrary, a breast that is only partly emptied does not refill completely, therefore does not produce the proper amount of milk to nourish the child. If the baby is unable to empty the breast completely the milk that is removed from the breast by the method described may be fed to him from a medicine dropper or a bottle.

WEANING

Weaning should take place when the baby is from nine to ten months old. It is a mistake to prolong breast feeding beyond this age, as there are very few instances where the milk can fill the child's needs after ten months. Much harm may come from too prolonged nursing, and instances of failure to gain in weight, sleeplessness, irritability and restlessness may sometimes be traced to this cause. Obstinate constipation also may result from too long continued breast feeding. Exception to this rule of weaning should be made, however, when the child reaches nine or ten months of age during the summer months. In such cases it is well to wait until hot weather is over before weaning is begun.

In preparation for weaning, it is a good idea to accustom the child to the use of the bottle during the early months of life. This may be done by giving water from the bottle between feedings. There are some instances in which it seems desirable to teach the baby to drink from a cup as soon as he is weaned. This method has the advantage that it is then unnecessary to teach the baby to give up the bottle at a later date. The more ordinary method, however, is to substitute the bottle for the breast and then, later, to accustom the

child to the use of a cup or spoon. Weaning from the bottle should take place when the child is about eighteen months of age, and the use of the bottle should not be allowed in any event beyond the time when the child is two years old.

Method of Weaning

The best method is to make the weaning gradual by substituting one bottle feeding for a breast feeding. At the end of three or four days a second bottle feeding may be substituted for another breast feeding. Allowing the same interval to elapse between the subsequent substitutions of additional bottle feedings for breast feedings, the entire weaning should take from two to three weeks. There should be no haste in the process, first, because it is necessary for the baby to become accustomed to the new method of feeding, and second, because the gradual change allows the mother's breast to dry up in a normal manner.

In beginning bottle feedings it is well to use a milk formula for a child two or three months younger than the baby to be weaned. As soon as the weaning has been accomplished, the formula may be increased in strength until the proper modification for the baby's age is reached. If too strong a milk modification is used in the beginning there is apt to be indi-

gestion with some colic and possibly vomiting and diarrhoea.

During the process of weaning, and for a short time afterwards, there is usually some loss in weight, or the weight may remain stationary. This is a common indication, and no attention need be paid to it unless it persists after the baby is taking the proper milk formula for his age. If loss of weight then continues, the milk modification should be increased until whole milk is given. After that, other articles of diet may be added, provided the baby's digestion remains normal.

Care of the Breasts in Weaning

If the weaning must take place suddenly, it is possible that the breasts may become engorged and painful. If this occurs, a breast binder must be used. This should afford as tight compression as necessary. Absorbent cotton should be laid in folds around each breast, with a small amount under each arm. A strip of stout muslin, broad enough to cover the breasts, and long enough to reach well around the body, should then be drawn tightly over the breasts, and pinned or sewed so as to give firm and even pressure. At the same time the mother should abstain from all fluids, including tea, coffee, milk and water as far as possible, and each morning should take a

glassful of citrate of magnesia, or a table-spoonful of epsom salts dissolved in a glass of water. The laxative should be given each day in sufficient quantity to insure three or four loose bowel movements. Under the treatment the milk will usually leave the breasts in the course of three or four days without marked disturbance to the mother.

SUBSTITUTE FEEDING

If the baby cannot be nursed from the breast, cows' milk properly modified to suit the needs of the individual infant is the best substitute that can be provided. In some countries and in certain parts of the United States, the use of goats' milk has been advised. This is a good substitute for human milk, provided the health of the goats is assured. It may be modified in the same way as cows' milk.

Composition of Human Milk and Cows' Milk

The various food elements that are present both in human milk and cows' milk are proteids, fats, carbohydrates, mineral salts and water. *Proteids* are the solids found in milk. Their function is to replace the constant waste that is going on in the human body, and also to promote the growth of the tissues of the body. The *fats* in the milk are found in the

cream. They furnish heat and energy to the body, and also help replace waste tissue, aid in the growth of the nerve cells and fibers, and to a certain extent, aid in bone development. The excess fats not used in body development act as an intestinal laxative, and if the fats are deficient the infant usually is constipated. Deficient fats are responsible also for many cases of rickets. *Carbohydrates* are found in milk in the form of milk sugar. In the body they are partly converted into fats, and partly act directly in furnishing animal heat. Milk sugar is particularly adapted to the digestive powers of the infant, and when more sugar is needed in any modification of milk for infant feeding it is customary to use milk sugar to supply the deficiency. Cane sugar may be used in place of milk sugar, but should be added in only half the quantity indicated for milk sugar. An excess of cane sugar does harm in that it tends to produce fat, which makes the baby plump, but does not give it resisting power, owing to the lack of muscular development. *Mineral Salts* are found both in human milk and in cows' milk in the form of salts of lime and magnesium. Their function is mainly to build up the bony structure of the body, and owing to the rapid growth of infants and children, mineral salts are more

important in their diet than they are in adult life. *Water* forms about eighty-seven per cent of the composition of milk. It is essential as a solvent for the other constituents of milk, such as the proteids, carbohydrates and salts, and to hold the fats in suspension to form an emulsion. Water is necessary to replace the great waste of bodily tissue that is going on constantly, and the fluids that are lost through the bowels, kidneys and skin. In proportion to its weight, an infant requires six times as much water as an adult does.

Comparison of Human Milk and Cows' Milk

The following table shows a comparison of human milk and cows' milk.**

	<i>Human Milk</i> <i>Average Per Cent</i>	<i>Cows' Milk</i> <i>Average Per Cent</i>
Fats.....	3.50	4.00
Sugar (carbohydrate).....	7.50	4.75
Proteids.....	1.25	3.50
Salts.....	.20	.75
Water.....	87.55	87.00
	<hr/>	<hr/>
Total.....	100.00	100.00

**Holt

The main difference between human milk and cows' milk lies in the greater amount of

sugar in human milk, and the excess of proteids in cows' milk. In the analysis given above, milk with 3.5 per cent fat has been given as an average, as milk of this fat content gives the best results in infant feeding. While the sugar in cows' milk is less than in human milk, it is of the same kind. The proteids, occurring in larger amount, also form a tougher curd, and are less easy of digestion than the proteids of human milk. These facts all must be taken into account when deciding how cows' milk is to be modified for infant feeding.

Cows' Milk

Jersey, Alderney or Guernsey cows usually give milk which has a very high fat content, therefore its use is apt to cause digestive disturbance. The milk from Holstein or Ayrshire cows is more desirable. Milk from a mixed herd is better than milk from a single cow, because of the danger of infection of the milk from one cow. Such a possibility of infection offers less danger if such milk is mixed with the milk from a large number of cows. The milk from a herd is apt also to be more even in its composition, and so less apt to produce digestive disturbance.

Care of the Milk

Pure milk may be defined as that which is obtained from healthy cows, kept under

sanitary conditions, whose udders and teats are cleaned before milking, the milking done with clean hands directly into sterile containers, which are sealed and kept at a temperature below 50 degrees Fahrenheit until the milk is used by the consumer. Such milk should not contain more than thirty thousand bacteria per cubic centimeter when delivered to the consumer. Emphasis must be placed upon the necessity of absolute cleanliness in milk production and handling. All the cows in the herd should be tuberculin-tested once a year, so as to be sure they are free from tuberculosis. If any cow shows a positive reaction to such a test, it should be removed from the herd at once. The cow barns should be kept clean, with all manure removed from the barns at least twice a day, and stored at least two hundred feet distant. The inside of the barns should be whitewashed at least twice a year, and the floors and walls kept in cleanly condition. Before milking, the udders and the teats of the cows should be washed, and the milker should wash his or her hands in clean, fresh water, with soap. All utensils used for holding the milk should be washed thoroughly after using, and scalded immediately before using. All persons coming into contact with the milk supply should be free from disease, and should keep their

bodies and clothing in cleanly condition. The water used to wash utensils or to wash the hands should be of known purity. If the milk is to be sent any distance, it should first be milked into clean containers, strained, bottled and cooled at the farm. Cooling should be carried out preferably by placing the bottles in cold water, and after they have been thoroughly chilled, keeping them on ice so that the milk will be at a temperature of 50 degrees Fahrenheit or less, until it is delivered to the consumer.

*Care of Milk to Be Used Soon
After Milking*

When the milk is not to be transported, but is to be used within a few hours, it should first be strained through cotton or thin cheesecloth into clean bottles or jars, then covered and cooled by immersion for half an hour in cold water which reaches to the neck of the bottles. It should then be placed in the ice-box, and kept very cold until used.

Types of Milk Usually on Sale

In most cities milk is graded according to its quality. The best grade, or what is usually known as Grade A, consists of certified or guaranteed milk which is produced under carefully restricted conditions, and is almost en-

tirely free from bacteria, or it may be milk which has been produced under equally good conditions, and then pasteurized before delivery. The second grade—Grade B—is bottled milk which is produced under conditions a little less ideal than for Grade A, but which has been pasteurized before delivery. This milk usually sells at a price several cents below that of Grade A. It is not advised for infant feeding, but is perfectly good for children after they have been weaned. The third grade—Grade C—is what is commonly known as “grocery milk.” Usually it is sold in bulk, and placed in a container brought by the customer. Such milk is apt to contain an enormous number of bacteria, and is particularly dangerous for infant feeding, especially during the summer. Loose milk should not be used for feeding children under five years of age.

Care of Milk in the Home

From the time the milk reaches the home until it is used, it must be kept cold, clean and covered. As soon as it is received it should be placed in the refrigerator, close to the ice, and never left uncovered. All utensils used to hold milk should be absolutely clean, and the neck of the bottle wiped off carefully before the milk is poured out. Before using the milk for infant feeding it should be tasted to be

sure it is fresh and sweet. Thunderstorms are apt to sour milk and particular care must be taken that such milk is not used for infant feeding. Freezing does not actually change the chemical constituents of milk, and milk that has been frozen may be used by adults. It is, however, most inadvisable to use it for infants. While some babies do not react badly to milk that has been frozen, in some instances it causes attacks of colic and vomiting, and acute diarrhoea, therefore its use is to be avoided.

Refrigerator

As so much depends upon the care of the milk in the home, there should be a refrigerator kept exclusively for the baby's use. Where this is not possible, a special compartment in the family refrigerator should be set aside for the baby's milk. This refrigerator or compartment should be scoured at least once a week with hot soapsuds, followed by a solution of washing soda in water. When a ready-made refrigerator is not easily obtainable, one may be made at home at little cost. The idea is based on the same principle as the fireless cooker, and the method of construction has been described by Dr. Alfred Hess, as follows: "Get a wooden box at a grocery store, such as a soap box, fifteen inches in depth. Buy a covered earthenware crock, tall enough to hold

a quart bottle of milk. Also get a piece of oilcloth or linoleum about a foot wide and three feet long. Sew the ends together to make a cylinder which will fit loosely around the crock. Place the crock inside the oilcloth cylinder, and stand them in the center of the box. Now pack sawdust or excelsior beneath, and all about them to keep the heat from getting in. Complete the refrigerator by nailing a Sunday paper or two other newspapers to the wood cover of the box. It is now ready for use.

“In the morning, as soon as you receive the milk, place it in the crock, crack five cents worth of ice, and place it about the milk bottle. Place the cover on the crock, and the lid on the wooden box. No matter how hot the day has been, you will find some unmelted ice in the crock the next morning. Remove the crock every morning to pour off the melted ice.” (See illustration opposite page 67).

If such a refrigerator is not available, a satisfactory substitute may be improvised by using a leaky pail or a coal scuttle. Place in it the bottle of milk and a block of ice, cover carefully with a piece of heavy cloth or carpet, and place the whole in a sink or other place where it may drain.

Thermos Bottles

Thermos bottles may be used to contain milk, if the latter is thoroughly chilled and below a temperature of 50 degrees when placed in the container. Under no circumstances should milk at a temperature above 50 degrees Fahrenheit be kept in a thermos bottle. Above 50 degrees the germs in milk multiply with great rapidity, and if the milk is kept persistently at a temperature above that point, it soon becomes unfit for human consumption, and particularly dangerous for infant feeding.

RELATIVE VALUE OF RAW AND PASTEURIZED MILK

There can be no doubt that when the purity of milk is assured it is much better to feed the baby on raw milk. Recent investigations have shown that fresh, raw milk contains certain vital elements which are necessary for body growth and the maintenance of life. These elements or vital principles are called *vitamines*. They exist in milk, in green vegetables and in a number of other fresh foods. Prolonged heat tends to destroy the *vitamines*. Sterilized milk, which is really boiled milk, probably contains few, if any, of these vital principles. Pasteurization of milk, in all probability, does not destroy the *vitamines* entirely, but cer-

tainly it lessens their efficacy. It is realized, however, that there are few instances where purity of the milk supply can be established definitely. For this reason some form of heating to destroy bacteria or germs is necessary in the vast majority of instances. While raw milk, if of known purity, is certainly the best substitute feeding we have for babies, the use of sterilized or pasteurized milk may be made perfectly safe, provided the child is given some form of fruit juice which contains the vitamins and which will make good the deficiency of these vital principles in the sterilized or pasteurized milk.

When sterilized or pasteurized milk is used for infant feeding, the baby should be given orange juice or the strained juice of canned tomatoes each morning. The amount should vary from one teaspoonful when the baby is about three weeks to a month old, increasing gradually until two tablespoonfuls are given when the child is from eight to nine months old.

STERILIZED MILK

Sterilization of milk consists in boiling it for at least five minutes. The process destroys all germ life present and, to a great extent, it destroys also the spores which are the early forms of germ life and which later develop into bacteria or germs.

Result of Use of Sterilized Milk

Sterilization of milk has been found to render the curd more digestible. Upon reaching the baby's stomach it forms into fine particles instead of the heavy, solid curd which sometimes is found after the use of raw or even pasteurized milk. Its advantages are most manifest when used for infants under two weeks of age, and in its use throughout hot weather. Boiled or sterilized milk should always be used if there is doubt as to the cleanliness of the milk supply. The disadvantages are that its prolonged use is apt to cause constipation. This may be corrected, however, by adding more sugar to the milk formula or by substituting cane sugar for milk sugar. Another disadvantage is that sterilized milk, because of its lack of vitamins, may result in scurvy. This may be avoided by the use of orange juice or the strained juice of canned tomatoes in the amounts, and in the manner described in the paragraph on "*Relative Value of Raw and Pasteurized Milk.*"

PASTEURIZED MILK

Pasteurization consists in heating milk to a temperature of 145 degrees Fahrenheit, and keeping it at that temperature for thirty minutes. This process destroys practically all

bacteria but does not destroy all the spores, therefore, if pasteurized milk is not kept at a temperature below 50 degrees, it soon will contain as many bacteria as it contained originally, although they will be of a different kind. The main bacteria in milk are those which convert the milk sugar into acid and cause souring. These bacteria are destroyed by pasteurization, as are also the bacteria of any specific disease such as scarlet fever, diphtheria or tuberculosis, if through any mischance the milk should have become infected by such germs. While these bacteria are destroyed by pasteurization, a certain type of bacteria which are called the "protein-attacking bacilli" are left unharmed, therefore, although pasteurized milk does not sour easily, the proteins in it become decomposed and in time the milk becomes spoiled and easily causes digestive disturbance in infants. It must be remembered, also, that pasteurized milk is just as likely to become reinfected as raw milk, and therefore, it must be kept as clean and as cold as raw milk, and particular attention must be paid to seeing that it is kept covered so that there may be no danger of its reinfection. Notwithstanding these disadvantages, the use of pasteurized milk is advised in every instance where there is any doubt whatever as to the purity of the milk

supply. Pasteurized milk does not have the disadvantages of sterilized milk, while possessing practically all its advantages.

Methods of Home Pasteurization

If there is any doubt as to the purity of the milk supply, and if pasteurized milk cannot be obtained, home pasteurization is a simple matter and readily carried out. There are a large number of pasteurizers on the market. They consist usually of a round pail with a wire rack to hold the bottles. The individual feeding bottles are placed in the rack, which is let down into the pail of water. The whole is then placed on the stove and the thermometer which is part of the pasteurizer, will indicate when a temperature of 145 degrees has been reached. The water is kept at this temperature by keeping the heat even for a period of thirty minutes. The bottles then are removed from the pasteurizer, cooled rapidly by being placed in cold water or under cool running water, and as soon as they are cold, they are to be placed in the icebox, to be kept until needed. A simple form of home pasteurizer may be made as follows: Take a pail deep enough to allow the water to reach to the neck of a quart milk bottle. Place an inverted saucer in the bottom of the pail, and set the bottle of milk on this. Pour in water

up to the top level of the milk. Place the whole on the stove and let the water come to a boil. As soon as it begins to boil, remove the pail from the fire, cover and let it stand for half an hour. Then remove the milk bottle and cool it quickly by letting cold water run over it or by placing it in cold water. The bottles then should be placed on the ice and kept cold.

MODIFICATION OF MILK

Cows' milk, because it is suited to the stomach of a calf and not to the stomach of a human baby, needs to be modified before it is used for infant feeding. This modification is intended to make it as nearly as possible like human milk, which is provided to suit the different ages of the child. The process of modification consists, first in diluting the milk with water to reduce the proportion of proteins found in cows' milk. This dilution, however, reduces the other constituents of the milk, so that it is essential to add other ingredients to bring the whole mixture back to the desired point. Next, milk sugar is added, to supply the deficiency of sugar caused by the dilution. Third, it may be necessary, in certain instances, to add cream or lime water to increase the amount of fats or to add to the mineral

salts in the cows' milk. This should never be done, however, without a physician's advice.

Principles of Milk Modifications

There is probably no one subject with relation to the care of babies about which more has been written than the proper way to modify cows' milk for infant feeding. In the past, various methods have been tried out and the most intricate kinds of formulae have been advised and used. Experience has shown, however, that there is no need for intricate modifications for proper baby feeding. Indeed, many of the most carefully thought out formulae do not agree at all with the digestive powers of the infant. The day is past when the mother needs to burden her mind with perplexing percentage formulae and top milk mixtures. The simplest methods of baby feeding are the best. Ordinary dilutions of milk, with the addition of a little milk sugar or cane sugar, are all that are necessary for the best results in baby feeding. The formulae given in this book, therefore, are based upon this principle. It must be remembered, however, that no definite and absolute set of formulae can be given to suit all infants. Unfortunately, the feeding of babies is not quite so simple as that, but there are certain principles which are so well established that

it is possible now to give a general outline of feeding which is suited to the average baby of a given weight and age. This does not mean that this formula always will agree with every baby of that weight and age, but in the few instances where it does not, the various methods described in this book may be used to alter the modification to make it suit the infant in question. (See table on page 112).

Method of Choosing the Proper Formula

The formula should be chosen by the weight of the child rather than by his age. If, however, the baby weighs eight or nine pounds at birth, it is not wise to begin with the formula for an eight or nine pound baby. For the first four weeks of life the formula chosen should be that which relates to the age of the baby rather than his weight, but after that time the weight is the point to be considered.

Amount to Be Given at Each Feeding

In general, the baby should take at each feeding one to one and a half ounces more than he is months old, up to the seventh month. After that he should take an amount equal to his age in months, until eight ounces have been reached. The amount need not be increased after that age. For example, a baby two months old should take from three to three

FORMULAE FOR FEEDING AVERAGE BABIES

Age	Weight	Amount of Milk	Amount of Water	Amount of Milk Sugar*	Amount at Each Feeding	Times of Feeding	Number Feedings Per Day	Total Amount in 24 Hours
1st week	7-6½ lbs.	5 oz.	10 oz.	1 oz.	2 oz.	2, 6, 9 a. m. 12, 3, 6, 10 p. m.	7	14 oz.
2nd week	7-7½ lbs.	6 oz.	10 oz.	1 oz.	2 oz.		7	14 oz.
3rd-4th week	7½-8½ lbs.	10 oz.	10 oz.	1 oz.	2½ oz.		7	17½ oz.
2nd month	10 lbs.	16 oz.	10 oz.	†6 drams	3½ oz.		7	24 oz.
3rd month	11 lbs.	18 oz.	10 oz.	5 drams	4 oz.	6, 9 a. m. 12, 3, 6, 9 p. m.	7	28 oz.
4th month	12 lbs.	22 oz.	**8 oz.	5 drams	5 oz.		6	30 oz.
5th month	13½ lbs.	26 oz.	**8 oz.	4 drams	5½ oz.		6	34 oz.
6th month	15 lbs.	30 oz.	**6 oz.	4 drams	7 oz.		5	35 oz.
7th month	16 lbs.	32 oz.	**8 oz.	3 drams	8 oz.	6, 10 a. m. 2, 6, 10 p. m.	5	40 oz.
8th month	17 lbs.	32 oz.	**8 oz.	3 drams	8 oz.		5	40 oz.
9th month	18 lbs.	34 oz.	**6 oz.	2 drams	8 oz.		5	40 oz.
10th month	19 lbs.	34 oz.	**6 oz.	2 drams	8 oz.		5	40 oz.
11th month	20 lbs.	36 oz.	**4 oz.	0 drams	8 oz.		5	40 oz.
12th month	21 lbs.	40 oz.	0 oz.	0 drams	8 oz.		5	40 oz.

*Use only half the amount indicated if cane sugar is substituted for milk sugar in these formulae.

**Use barley water in making up formulae after three months of age.

†One dram equals one teaspoonful.

and a half ounces of the mixture, at three months, four ounces, while a baby seven months will take eight ounces of milk, a baby eight months will take eight ounces, and a baby nine months will take the same amount. These amounts equal the capacity of the child's stomach at the ages given. A greater amount of food tends to dilate the stomach and cause symptoms of overfeeding.

Intervals of Feeding

From birth the baby should be fed at intervals of not less than three hours, with one night feeding. When he is three months old the night feeding should be omitted. At six months the interval of feeding should be lengthened to four hours. With robust infants the four-hour interval may be used from the beginning. Whenever it is possible to omit the night feeding at an earlier age than that given, that plan should be carried out. Frequently, babies can be made to sleep all night from the time they are born. They should never be awakened at night for a feeding, and the night feeding should be omitted as early in life as possible. In any event, it should never be continued after the third month.

The interval of feeding and the amounts at each feeding recommended in the table have been found to lessen the liability to digestive

disturbance, to prevent regurgitation, vomiting, diarrhoea, colic and wind. Babies fed at these intervals are most restful, better nourished and have a finer development. Many of the digestive disturbances of the past may be traced directly to the practice of feeding babies too frequently and in too large amounts. Not only is the capacity of the baby's stomach limited, but investigations have shown that it takes from two and a half to three hours for a baby to digest milk. To give him additional milk before the amount already in his stomach has been digested is one of the easiest ways of promoting digestive disturbance and causing illness.

Use of Water in Infant Feeding

Every baby needs water to drink. When the three or four-hour feeding schedule is used, water should never be omitted. During the first week at least two teaspoonfuls should be given between feedings, and this amount should be increased gradually until the baby at six months is getting from two to four tablespoonfuls between feedings. Water should be given from a nursing bottle or from a spoon.

Utensils Needed for Modifying Milk

The following utensils are needed for modifying milk:
(See illustrations on pages 114 and 115.)

Eight four-ounce bottles. For the later months, eight-ounce bottles are necessary. They should have wide mouths so that they may be cleaned easily.

Nipples—Rubber of good quality is advised. They should have no holes when purchased. Holes of proper size may be made with a No. 10 Cambric needle which has been heated and then plunged into the rubber. The hole should be of a size which will permit the milk to flow drop by drop when the bottle is held upside down. Any steady flow of milk shows that the nipple hole is too large. If the baby finishes contents of the bottle in less than twenty minutes, this also is an indication that the hole in the nipple is too large.

Brush for cleaning bottles and nipples.

Two-quart pitcher.

Eight-ounce or sixteen-ounce glass graduate, for measuring.

Double boiler.

Saucepan.

Strainer.

Funnel for filling bottles.

Dishpan for sterilizing bottles.

Bottle rack.

Teaspoon and tablespoon.

Jar for holding nipples.

Package of non-absorbent cotton.

Method of Preparing Modified Milk

All milk to be used for the day should be prepared each morning. A clean table should be available to work on. All utensils should be scalded in hot water, and the outside of the milk bottle washed with cold water before the cap is removed. If barley water, rice water or oatmeal water is to be used, it should be

prepared first. The cereal should be measured accurately and creamed in cold water to avoid lumps. It should then be added to the water in the double boiler, stirred constantly to avoid scorching, and boiled for thirty minutes. After the barley water has been prepared, the sugar needed for the day's feeding should be measured out and dissolved in a few tablespoonfuls of boiled water. This should be placed in the pitcher, the necessary amount of milk added, then the water or barley water, the whole stirred well together and the bottles filled, using the funnel. After filling, the top of each bottle should be plugged with a small piece of the non-absorbent cotton and all placed on the ice to be kept until needed.

Feeding the Baby

At the time of feeding, the bottle should be removed from the icebox and placed in a jar of warm water. The milk should be at body heat when used. This may be ascertained by letting a few drops fall on the wrist. The nipple should never be put in the mouth to test the temperature or the taste of the milk. A little of the milk mixture may be poured into a spoon and tasted to be sure it is sweet before it is given to the baby. As soon as the milk is at blood heat or body temperature, a clean nipple should be placed on the bottle, and the

feeding given to the baby at once. Any milk that may be left in the bottle after feeding must be thrown away.

Care of the Bottles

Immediately after using, the bottle should be rinsed with cold water, then washed with hot water and placed upside down in the bottle rack until needed for filling on the following morning. Before the bottles are filled again they should be scalded with hot water.

Care of the Nipples

As soon as they have been used, the nipples should be rinsed out with cold water and turned inside out so that no particles of milk may adhere to the inner surface. They should then be scrubbed thoroughly in warm soap-suds and water. It is not necessary to boil the nipples every day, although this should be done once a week. Rubber spoils rapidly and if ordinary precautions of cleanliness are observed this extreme heating at frequent intervals is not essential. In the intervals between using, the nipples should be kept in a covered jar filled with a solution of borax, one teaspoonful to a glass of water, or table salt, one teaspoonful to a glass of water. Before using, they should be rinsed with warm water.

*When Amount of Food or Strength of Formula
Should Be Increased or Decreased*

The amount or strength of the formula may be *increased* if the baby's digestive condition is good, that is, if there is no vomiting or diarrhoea, but if the child seems to be hungry after feeding, shows evidence of not being satisfied, and the weight either remains stationary or decreases. There should be only the regular increase in the quantity and strength of the food if the child is gaining regularly, seems comfortable and sleeps well. The strength and quantity of the food should be *decreased*, that is, more water should be added or the formula for a younger child used, if the child shows a tendency to diarrhoea, vomiting, marked restlessness or evidence of over-feeding, such as regurgitation, colic, wind or other evidence of indigestion.

*Use of Other Ingredients in Milk
Modification*

If the child is not gaining in weight, but there is no digestive disturbance such as vomiting or diarrhoea, or if marked constipation is present, milk sugar or cane sugar may be left out of the formula and replaced by malt sugar (Mead's Dextri-Maltose) or one of the cereal proprietary foods such as Horlick's or

Borden's malted milk or Mellen's food, in the quantity of two level tablespoonfuls to each twenty ounces of the milk mixture. There are also two *liquid* forms of malt sugar, known as "malt zymose" and "Loeﬂund's malt soup." When using these, the day's feedings should be prepared without sugar and two tablespoonfuls of either of the liquids mentioned should be added to the milk and barley water, and the whole brought to a boil. This should then be placed in the individual feeding bottles and cooled in the usual way. The amount of Loeﬂund's malt soup or malt zymose may be increased by one teaspoonful every day until there is some indication that the stools are loose, when the amount may be reduced by two or three teaspoonfuls at a time until the stools are normal in consistency and number of movements. The use of the preparation described above causes the stools to be of a brownish color. When indigestion is manifested by vomiting, colic or diarrhoea, skimmed milk should be substituted for the whole milk in the modification, and the greater part of any kind of sugar omitted. The malt sugar and foods mentioned above should never be used if there is vomiting or diarrhoea.

DRIED MILK

Milk from which practically all of the water has been removed, leaving only the solid parts, has been put upon the market within the last few years under various trade names. Practically all of the brands are reliable. Some preparations consist of the solids of whole milk, including the cream; others have had the cream removed from the milk before the water has been evaporated.

The usual process of preparing this milk is by spraying it upon hot revolving cylinders which drive out all of the water at once. The powdered or dried milk is then placed in sterile containers and sealed. Powdered skimmed milk will keep almost indefinitely. The powdered whole milk will keep for several months but may become rancid.

In order to use this milk for infant feeding it is usual to add one part of the milk powder to eight parts of water, in order to bring it back to the full strength of the ordinary fluid milk. It may then be modified in accordance with the directions given for fluid milk.

Dried milk has many advantages. It is uniform in its composition, sterile, easily carried from place to place and does not require ice to keep it in hot weather. It may be considered an excellent substitute for fluid milk

when the latter is not available or if the purity of the milk supply is questioned.

CONDENSED MILK AND PROPRIETARY FOODS

Condensed Milk

Condensed milk is prepared by bringing whole milk to a very high temperature in a vacuum, then adding sufficient sugar so that it will keep for a considerable period of time. Canned condensed milk will keep almost indefinitely.

Evaporated Milk

Evaporated milk is prepared in the same manner as condensed milk, except that the sugar is not added. The process of condensing or evaporating milk extracts some of the water, leaving the solids in the form of a thin paste.

Use of Condensed Milk in Infant Feeding

Where the purity of the milk supply cannot be assured and where it is difficult if not impossible to sterilize or pasteurize it, as in traveling or in the case of temporary residence in various places, also when a child is suffering from a form of indigestion which causes colic and wind, condensed milk may be used for a time. Its prolonged use, however, is not advised as the amount of sugar in condensed milk is apt to increase the child's weight by

increasing the fat deposit in the body, while the muscular strength is not increased. Babies fed habitually on condensed milk are less apt to be resistant to disease than those fed on fresh, pasteurized or sterilized milk.

How to Prepare Condensed Milk for Infant Feeding

For a child three months old, one part of condensed milk to fifteen parts of water furnishes a good proportion. This may be prepared by pouring one teaspoonful of condensed milk from the can and adding to it four ounces of water. The strength of this mixture may be increased gradually until the child at six months of age is taking a mixture in the proportion of a teaspoonful of the milk to two ounces of water. In preparing condensed milk it must be remembered that the spoon should not be placed in the can, and the milk dipped out. The required amount should be poured from the can into a clean spoon and measured in that way.

Use of Evaporated Milk

Evaporated milk may be used in the same way and in the same proportion as condensed milk. As there is no sugar in the milk, some may be added in the proportion of one teaspoonful of milk sugar to every six ounces of

the mixture. As evaporated milk will not keep it must be used within twenty-four hours of the time the can is opened.

Proprietary Foods

Practically all the proprietary foods depend upon their cereal content. Certain of them have starch as an ingredient. Very young babies do not digest starch readily, therefore, in general, the proprietary foods should not be given to children until they are over three months of age. If the baby is not thriving on cows' milk mixture, and particularly if there is any indigestion with marked constipation, one of the cereal foods, such as Mellen's or Horlick's, may be added to the milk. These foods may be used also in place of the milk sugar or cane sugar in modifying cows' milk, particularly if there is any tendency to colic, wind or constipation in the infant. For babies over three months of age, various other infant foods such as Imperial Granum, Nestle's or Eskay's may also be used. It must be understood, however, that any of these prepared infant foods, unless they are made up with cows' milk, do not furnish in the right proportion the necessary constituents to keep the baby in good health. There are cases where the ordinary modifications of cows' milk do not seem to suit the infant's digestion. In such

instances it may be necessary to try not only one, but many of the various types of proprietary foods, but just so far as possible they must be made up with cows' milk. Plain, fresh, pasteurized or sterilized cows' milk, properly modified with water, barley water and milk sugar is the best substitute we have for breast feeding. However, if its use is not tolerated by the baby after repeated attempts to select a satisfactory formula, it will probably be necessary to try out the condensed or evaporated milk until the infant's digestion is in good condition, and then begin with one of the proprietary foods. No special one can be recommended above the others. All that have been mentioned are standard and reliable, and with the reservation given as to the age at which the child can take the special kinds of food, any one of them may be selected.

ADDITIONAL FEEDING UNDER ONE YEAR

Three to Four Months

Barley water should be substituted for plain water in milk modifications. If there is a tendency for the baby to be constipated, oatmeal water may be used in place of the barley water.

Two to Six Months

Orange juice or the strained juice of canned tomatoes should be given to babies as early

as two months, if pasteurized or sterilized milk is used. Breast fed babies need not have the orange juice until they are about six months old. It should be given in two teaspoonful amounts to start with, and gradually increased until at six months the baby is receiving at least a tablespoonful, and at nine months two tablespoonfuls. The juice of canned tomatoes may be substituted for the orange juice in any instance, and is equally as effective as orange juice in preventing scurvy in infants who are fed on pasteurized or sterilized milk.

Six to Nine Months

In bottle fed babies, beef, lamb or chicken broth may be given for one feeding of the day as early as six months. If the baby is doing well on the milk mixture, it is not advisable to change the diet, but if there are indications that the milk is not all that is necessary and the baby seems hungry and restless, one ounce (two tablespoonfuls) of the broth may be given once a day.

Six Months

If the baby is delicate it is advisable to begin with beef juice, one teaspoonful every other day for children as young as six months. All babies at nine months should have beef juice on alternate days. It can be given on a

little dry bread. Beginning with one teaspoonful, it may be increased gradually until at one year the child is receiving from two to four teaspoonfuls on dry bread at a meal. The white of a coddled egg also may be given as early as six months, but should never be given on the same day as beef juice.

Eight to Ten Months

When the teeth come through on both upper and lower jaws, the baby should have a small piece of zwieback, once a day or a hard Huntley & Palmer biscuit to chew on.

Nine to Ten Months

At this time, the baby, having been weaned, may have a teaspoonful of the mealy part of a baked or boiled potato with a little dish gravy or beef juice, a teaspoonful of scraped beef or two ounces of milk, vegetable or spinach soup. Soup, broth, beef juice or coddled egg should not be given on the same day. At this time, however, cereal gruels may be given once daily.

When the child begins to take solid food, not more than a quart of milk a day need be given. Part of this may be in the form of junket.

CHAPTER VII

STOMACH AND BOWEL DISORDERS

LOSS OF APPETITE

In babies under one year of age loss of appetite usually is shown by refusal to take the bottle or breast feeding at the regular time. The cause is almost entirely due to some error in feeding; that is, the food is given at too frequent intervals, the milk mixture is too rich (there is too much cream in it) or, in older babies, loss of appetite may be due to the fact that the milk feedings have been continued for too long a time and other articles of food are desirable. Other causes are chronic constipation, hot weather, lack of fresh air indoors and too little airing out-of-doors. Loss of appetite is apparent, also at the beginning of any acute illness.

Treatment

The method of dealing with loss of appetite is obvious. The interval between feedings should be lengthened, and generally, the strength of the milk mixture should be reduced. This is particularly necessary in hot weather, when water should be added to the feeding, and in addition the baby should receive plenty of water to drink between feedings. Lengthening the feeding interval also is of the utmost

importance in hot weather, and no attempt should be made to increase the strength of the formula during the heated term. Attention must be paid to the condition of the bowels, and if constipation exists effort must be made to overcome it. The baby must be kept in the fresh air as much as possible, and the sleeping room must be well ventilated at night. If the loss of appetite is due to the onset of severe illness, other symptoms such as fever, irritability, restlessness, with possible vomiting and diarrhoea, will manifest themselves within a few hours and attention must be paid to the illness rather than to the symptom of loss of appetite.

REGURGITATION

Nearly all babies who have been overfed "overflow" or regurgitate their food immediately after feeding. Sometimes this condition occurs when only a normal amount of food has been taken.

Treatment

In such instances attention must be paid to the condition of the clothing as this type of regurgitation occurs frequently as a result of an abdominal binder or a diaper which is fastened too tightly around the child's waist. For the type of regurgitation which is caused

by overfeeding, the remedy is to lengthen the interval of feeding, and if this does not bring about the desired result, water should be added after the breast feeding or the bottle formula should be diluted with water. If regurgitation occurs immediately after feeding, the child should be placed quietly in his crib and not handled.

VOMITING

If the vomiting occurs *soon after* feeding, it is probable that the child is receiving too large a quantity of milk, or that the hole in the nipple may be too large, and the food is swallowed too rapidly. Handling the baby immediately after feeding, feeding him at too frequent intervals, or tight clothing which constricts the abdomen are all causes of vomiting.

Treatment

The treatment consists in removing the cause. The quantity of milk may be reduced, the period of feeding should be shortened to fifteen minutes, care must be taken to see that the baby does not nurse too rapidly, the clothing should be readjusted and the interval between feedings lengthened. The baby should, of course, be placed quietly in his crib immediately after feeding, although in case any gas or wind is present, he may be held up over

the mother's shoulders and his back patted gently in order to stimulate the eructation of the gas.

Vomiting *some time* after feeding usually is due to some change in the quality of the milk. It may be that there is too much fat, too much sugar, that the milk is stale or that the milk modification is too strong.

Treatment

In the case of the breast fed baby, the treatment is to lengthen the interval between feedings, and to give a smaller quantity of food. If the vomiting is persistent the baby may be fed wholly on barley water for three or four feedings, and returned to the breast for five or ten minutes for the next three or four feedings. Water should be given freely between feedings and the feeding interval lengthened. For the bottle fed baby, the feeding interval should be lengthened, two teaspoonfuls of lime water added to each feeding and a smaller quantity of milk used for the feeding. Less sugar should be added to the formula. If these measures do not stop the vomiting, the milk should be boiled and the sugar omitted entirely. Mild attacks of vomiting may be relieved by one quarter teaspoonful of bicarbonate of soda in one teaspoonful of



Courtesy Manhattan Maternity Hospital, N. Y.
Method of Syringing the Ear

water or fifteen drops of rhubarb and soda mixture in a teaspoonful of water.

STOOLS

For the first few days of life the bowel movements are black and sticky, and occur from two to four times a day. After the first week they become yellow, about the consistency of gruel. Later they are of a paler yellow, firmer and well formed. There may then be from three to four movements a day, if the baby is breast fed, or two to three if the baby is bottle fed. Occasionally babies have only one movement a day. If this is of good quality, no concern need be felt.

Abnormal Stools

If the bowel movements contain curds or lumps of mucus, it is an indication that the milk is not being digested properly. When the number of movements in a day exceeds four, and they are loose or watery in character, mixed with undigested food, sometimes greenish in color, there evidently is some distinct trouble with the feeding, and proper attention must be paid to the matter at once. Stools that are frothy, rancid, green, liquid in character and frequent in number, usually are due to an excess of sugar or fat in the feeding. The appearance of such stools may not be

accompanied by any constitutional symptoms. The baby may be restless, but usually there is no fever or any evidence of pain. There may be gas or colic. The baby's weight remains stationary or there may be a loss.

Treatment

The formula should be made with skimmed milk, with all sugar omitted. In hot weather the milk must be boiled. Water should be given freely between feedings, and the intervals between feedings lengthened. Restoration of the milk formula to its normal strength must be carried on gradually, the reduced formula being used for at least a week, unless the baby shows marked loss of weight in the meantime, when the amount of milk in the feedings may be increased or whole milk may be used in place of skimmed milk, but no sugar should be added until the bowels are entirely normal.

DIARRHOEA

With true diarrhoea there is a good deal of gas or wind passed by the bowels, and the baby usually has some fever, is very irritable and cries a great deal of the time. The abdomen may be hard and tense, and there may be other evidence of pain and discomfort. Diarrhoea is very uncommon in breast fed

babies. When it occurs it may be due to diminished vitality as a result of very hot weather, or to overclothing. In bottle fed babies, however, diarrhoea is common, particularly during the summer months. It may be due to overheating of the body, with too much clothing, or to irregular hours of feeding, or to too frequent feeding, too much sugar in the milk, or particularly to milk which is not entirely fresh or which has not been kept properly iced and covered. As diarrhoea in bottle fed infants may be a serious illness, active measures of treatment should be instituted at once.

Treatment

All milk feedings should be stopped immediately and the baby should be given a tablespoonful of castor oil. If the baby will not take castor oil or vomits it immediately after taking, give calomel in one-tenth grain doses every fifteen minutes until ten doses have been taken. For twenty-four hours there should be no food except barley water, rice water or albumen water, two ounces every two hours. Between feedings give plenty of cool, boiled water. During the illness the baby must stay in bed. If it is impossible to obtain the doctor's advice, and the child is very ill, the mother can give a colon irrigation. If

the baby has cold hands and feet, or if his legs and mucous membranes are blue, he should be given a mustard bath, then wrapped in a blanket with a hot water bag at his feet, and if necessary one on either side of the body. If the fever is very high, cool or tepid sponge baths should be given two or three times a day. Patent medicine should never be given to a baby except on the advice of a physician, nor should any preparations containing opium or alcohol be given. They are apt to do far more harm than good, and may be exceedingly dangerous in some cases.

At the end of twenty-four hours, if the diarrhoea has lessened, nursing should begin again, but should not last more than five minutes and should be kept at four-hour intervals. For the bottle fed baby, the milk must be greatly diluted, a formula being used that ordinarily is suited to a much younger child. The breast fed baby should have at least two ounces of water after the five-minute feeding. Frequent cool sponge baths and the very lightest of clothing are essential. If the diarrhoea does not stop at the end of twenty-four hours, there should be no delay in getting the advice of a physician.

Prevention of Diarrhoea

It is much easier to prevent diarrhoea in babies than it is to cure it. Particular care should be taken at the beginning of the hot weather to see that the milk supply is pure and that it is kept cool, clean and covered from the moment it reaches the home until it is fed to the baby. During the hot weather the milk should be pasteurized, and if there is any doubt at all about its purity or any difficulty in keeping it, the milk should be boiled. If there is any tendency to constipation after boiled milk has been used, an increased amount of sugar may be added to the formula. Throughout the hot weather the baby's clothing should be very light and loose. Cool boiled water must be given between feedings and the feeding interval lengthened. It is best that no increase in the strength of the milk be made during the summer months, unless the child is actually losing weight. During the heated term it is unusual for infants to gain to any extent, but this does not indicate that they are not healthy. The baby must be kept outdoors as much as possible, must have cool sponge baths at least twice a day and must be kept free from all unnecessary handling and over-excitement. If diarrhoea does occur, it should be cared for as outlined above.

CONSTIPATION

Constipation in breast fed babies is very rare. In bottle fed babies it usually is due to improper diet or to lack of muscular strength in the intestines.

Treatment

In the case of a breast fed baby it is necessary for the mother to increase the amount of fat in her diet. This may take the form of extra milk, cream, butter or olive oil in teaspoonful doses three times a day. The baby may be given a teaspoonful of cream in a little water before each breast feeding or half a teaspoonful of olive oil after the morning, noon and evening feedings. In a bottle fed baby constipation may also be due to lack of sufficient fat in the feeding, although often it is due to insufficient water. If the baby is over six months old the constipation may indicate that he has been kept too long on a milk diet, and needs additional food. Boiled milk, if long continued, also has a tendency to cause constipation. In such cases, orange juice should be given in the morning in tablespoonful doses at least one hour before the first feeding. Water must be given in sufficient quantity between feedings. If boiled milk is essential, an extra tablespoonful of

sugar should be added to the day's mixture. One teaspoonful of cream may be added to each feeding or a teaspoonful of olive oil may be given three times a day. Drugs should not be used, other than milk of magnesia which gives good results when one teaspoonful is added to the morning and night feedings. After the baby is three to four months old oatmeal water should be substituted for the barley water in making the formula, and at the end of ten months the child may be given the finely mashed pulp of some stewed prunes or a little baked apple each morning. It is important to establish regular habits, and the child should be taken to the stool at the same hour every morning.

COLIC AND WIND

Colic is one of the common disturbances of baby life. Usually it is caused by over-feeding, too rich milk, too frequent feeding, too much sugar in the milk, or irregularity in feeding. Some babies habitually gulp up quantities of wind from the stomach, and usually all that is necessary to start the eructation of the gas is to place the child gently over the mother's shoulder and pat him on the back. Sometimes, however, the symptoms are more severe. The baby may show signs of great distress, the face becoming blue and the muscles con-

tracted. The child draws up his feet and legs, the abdomen becomes hard and tense. The cry of colic is quite characteristic. Generally it is sudden, sharp and strong, and to the trained ear always means that the baby is suffering pain. The immediate treatment is to place the baby across the mother's lap on his stomach and pat the back gently, or he may be held against the mother's shoulder and his back rubbed or patted in the same way. Placing the baby face downward, with the stomach directly over a hot water bag, sometimes gives relief, care being taken to see that the bag is not too hot. Hot fomentations on the baby's abdomen also are helpful. The remedies which may be used consist of five drops of peppermint water in a teaspoonful of warm water, or a quarter teaspoonful of soda bicarbonate in a teaspoonful of hot water. Usually, after any of these remedies, there will be a sharp eructation of gas, and the child will begin to show relief. If the gas is in the bowels the abdomen may be massaged gently or rubbed, to start the wind. If this is not sufficient, a rectal injection of a pint of warm water with five drops of turpentine may be tried. This should be allowed to run into the rectum very gently, and when expelled usually will bring with it quantities of the gas.

Prevention of Colic and Wind

To prevent colic change must be made in the manner of feeding. Regular hours are essential. The interval between feedings must be lengthened. In breast fed babies two ounces of water should be given from a nursing bottle after each feeding.

MALNUTRITION AND MARASMUS

When the child has persistent malnutrition which is shown by inability to digest food, and by progressive loss in weight, or when the loss of body weight is so excessive that the child is actually emaciated, the condition is known as *marasmus*. This condition is far more common among babies in institutions than among those who are cared for at home. The general methods of hygienic care and right feeding are the best preventives, but prolonged malnutrition or marasmus may be the result of some special disease. While any baby in this condition should be under the immediate care of a physician, a few suggestions may be given to the mother.

Sometimes this condition of lack of nourishment is due to too strong milk mixtures in the artificially fed baby. Overfeeding also may be a cause. In this, as in every other matter concerning the baby, weight is the best indica-

tion of continued progress. When it remains stationary for any length of time, or continues to grow less, it is evident that the food is not agreeing with the baby. All other matters pertaining to improper baby hygiene are causative factors. Because the causes are so many, no regular rules can be given as to treatment.

If it is possible to obtain a wet nurse for the baby, this should be tried at once. Very weak dilutions of milk may have to be given for a time. If the weight is increasing slightly, do not increase the amount of food or force the feeding in order to increase the weight still more. Symptoms of vomiting and diarrhoea should be treated, but it must be remembered that these babies need more intelligent care than the normal baby. Fresh air is of the utmost importance and the baby should be kept outdoors as nearly as possible all of the twenty-four hours. Salt baths, gentle rubbing from head to feet with olive oil or cocoa butter, are excellent. This rubbing should always be toward the body; that is, beginning at the feet and making the movements up the legs, or beginning at the hands, and stroking up the arms. This should always be done very gently.

Such babies should never be allowed to remain very long in one position. Even while

they are sleeping, they should be moved. Mothers always should take up these ill-nourished babies several times a day, and walk around the room with them and hold them in their laps. While all these matters may help, and sometimes may effect a cure, the mother should never forget the importance of obtaining the best possible medical advice for her under-nourished baby.

CHAPTER VIII

MINOR ILLNESSES AND AILMENTS

HOW TO DETECT SYMPTOMS OF ILLNESS

The four main ways in which illness is shown are (1) appearance of the patient, (2) rise in temperature, (3) increase in pulse rate, and (4) increase in the respiratory rate.

Observation

While different diseases have different symptoms, in general the first signs of illness in a child consist in slight flushing of the face, irritability, restlessness, sleeplessness and lack of appetite. These signs are readily apparent. There are others which may be observed more readily when the baby is asleep. If he is well, the sleep will be quiet and peaceful. There should be no movement, restlessness or tossing about. In the normal baby, breathing is regular, easy and quiet, and he should always breathe through the nose, with the mouth closed. If he is well, the skin should feel cool and slightly moist. Hands and feet should always be warm, and the skin always should be a healthy pink color.

Temperature

The normal temperature of the body is 98.6 degrees Fahrenheit. Babies show more marked

changes in temperature than adults do. The cause of a high temperature in a baby may be very slight, and the temperature may go up to 103 or 104 degrees for a little digestive disturbance, or an illness which need give no cause for concern. The only time when an increase in temperature is to be considered is when it persists longer than six hours. The temperature always is slightly higher at night than it is in the morning. Some children have a temperature which always is above normal and some, particularly those who are poorly nourished, have a temperature which is consistently below normal.

Use of the Thermometer

The ordinary clinical thermometer must receive proper care. It always should be washed in cold water immediately before and immediately after using. It never should be put in a warm place or washed with hot water. If this is done the bulb of mercury at the end of the thermometer will break. Usually it is necessary for a person to be instructed in reading the thermometer, and every mother should obtain from her doctor or nurse the proper training in this regard. The baby's thermometer should be kept for his use alone. Before using, see that the indicator is at a point below 97 degrees. If it is not, the ther-

mometer must be shaken very gently until the mercury goes down to that point.

How to Take the Temperature

The baby should be placed on his stomach on the mother's lap, or he may be held on his back, the ankles grasped and the legs held at right angles to his body. The bulb end of the thermometer is greased with vaseline, the fold between the buttocks gently separated, and the thermometer inserted into the rectum for about one inch. It should be kept in place for from one to two minutes, depending upon the type of thermometer used. It is well to accustom the baby to the taking of his temperature, even when he is not sick, so that, if sickness occurs, he will not be unduly frightened or worried when the thermometer is used. The normal body temperature taken with the thermometer in the mouth is 98.4. The rectal temperature is about one degree higher, but because babies have such wide variations of temperature in any event, a rectal temperature in an infant need not be considered subnormal unless it is below 97.6, and it need not be thought that the baby has a fever unless the rectal temperature goes above 100.6. The length of time the fever lasts is far more important than the height it reaches.

A word of warning should be given against placing too implicit reliance upon the use of a thermometer. Many mothers have worried unnecessarily regarding their children because of the habit of taking temperatures every day. It is not necessary, nor is it wise, to take the baby's temperature unless there is some indication of illness. (See illustration opposite page 66.)

Pulse

All babies have a very rapid pulse. The number of beats in each minute decreases as the child grows older. Because the pulse is so rapid, it is difficult for anyone but a physician or a trained nurse to determine whether the number of pulse beats per minute is more than normal. If the child has a fever, there is an increase in the pulse rate. The duration of these conditions only need be considered as of any particular importance. In certain diseases, particularly those which affect the brain, there is an unduly slow pulse rate. The same word of warning is attached to taking the pulse rate that has already been given with regard to taking the temperature. There rarely are any occasions when the mother need take the pulse, and certainly she should not do so unless marked symptoms of illness are present.

How to Take the Pulse

The best way to feel the pulse is to place the forefinger of the right hand directly on the baby's right wrist, just at the base of the thumb. A little practice will show the spot where the beating of the artery can be felt most easily. While the normal pulse of a grown person is between seventy and eighty, the normal pulse of a baby at birth is between one hundred forty, and one hundred fifty. At one month this has decreased to between one hundred thirty, and one hundred forty, while at six months the pulse should not be higher than one hundred twenty. Usually it remains at about this rate during the remainder of the first year, while during the second year of life it should be between one hundred and one hundred ten.

Respiration

The frequency of a baby's respiration is not so important as its type. When the child is sick, it may be of importance to the doctor to have a record as to whether or not breathing has been irregular, noisy or difficult; also, in some instances it may be of value to know whether it has been rapid.

In common with the pulse, the respiratory rate of infancy is much higher than that of later life. The ordinary respiratory rate in an

adult is about eighteen per minute; that is, eighteen complete breaths are inhaled and exhaled in sixty seconds. In a new born baby the rate of respiration is about forty per minute, which decreases to thirty at the end of the first year, and is still further reduced to twenty-six when the child is about two years old.

CONVULSIONS OR SPASMS

Convulsions may be the first indication of the onset of an acute illness, or they may occur in a child otherwise apparently healthy, who, after the convulsion is over, may seem to be as well as ever. Always there is a tendency for convulsions to be repeated, unless proper action is taken to prevent them, and the more often they are repeated, the more fixed becomes the habit. For this reason, every effort must be made to see not only that the convulsions are treated at once, but that proper care is instituted to prevent their occurrence in future.

Causes of Convulsions or Spasms

The ordinary convulsion which occurs in a child otherwise in perfect health usually is caused by some digestive disturbance, due to some error in diet. Other causes of convulsions are diseases like rickets, whooping cough or acute

illnesses of various kinds. In boys, tight foreskin, which is an indication for circumcision, may cause convulsions by mechanical irritation. Children who are poorly nourished may have repeated convulsions for no apparent reason. Spasms of this kind are practically unknown to occur as a result of worms or of teething.

Symptoms

In some instances the symptoms are slight. The baby's body will become stiff, the eyes fixed. If the baby is a runabout, he may be walking and stop suddenly staring into vacancy. The young baby will lie perfectly rigid and quiet. The duration of the spasm is very short and the child recovers almost immediately, and seems as well as ever.

More Severe Type

In such instances the child's muscles begin to twitch, the whole body stiffens, the hands clench, the eyes have a fixed and vacant look, the forehead usually perspires freely and is cold. The child becomes unconscious, with feeble breathing, and will remain in this condition for several minutes unless active measures are taken to combat the spasm.

Treatment

If the child can be undressed at once, he should be placed in a mustard bath. Care must be taken to see that the water is not too warm. The best way to test it is to have the mother or attendant place her elbow into the water. If it feels warm but not hot, it will not burn the child. If a thermometer is available, the water should be prepared at a temperature of 102 to 104 degrees. If there is not time to undress the child, the shoes and stockings should be removed, the child placed flat on his back on the edge of the bed or table, and the feet allowed to hang into a mustard foot bath of the temperature mentioned above. Whether the full mustard bath or the mustard foot bath is given, a cloth wet with cold water or an icebag should be placed at the child's head. The bath should continue for from five to ten minutes. The feet or the body should be rubbed gently during this entire time. Then the child should be wrapped in a warm blanket, the icebag or iced cloth kept on his head and a hot water bag placed at his feet. As soon as it can be prepared an enema of warm soapsuds should be given in order to remove from the lower bowel any feces that may be there. A teaspoonful to a tablespoonful of castor oil should be given,

depending upon the age of the child, and he should be induced to sleep. Medical advice must be obtained for any child who has more than one convulsion. It is not safe to assume that he will outgrow them, nor is it safe simply to follow these methods of treatment that the mother may understand. After any convulsion, great care must be taken in regard to the feeding. For several hours the child should have nothing but water to drink and no food of any kind. When feeding is resumed, it must be exceedingly light. In young babies, the milk should be reduced one-half in quality by adding an equal amount of water. Although convulsions occur very rarely in breast fed babies, if they do occur the baby should be nursed only half the usual time, and then be given water to drink.

WORMS

Thread worms are the only type which occur in babies under one year of age, and it is rare for any symptoms to accompany these worms. The tape worm and other varieties of intestinal worms are not found until the child begins to eat solid food. The only way in which thread worms can be diagnosed is by finding them in the baby's stools. They occur as small, white threads, and if watched closely,

may be seen to move. Occasionally the eggs of the worms are found.

Treatment

Irrigate the lower bowel with a solution of a tablespoonful of salt to a quart of water, or a solution of two tablespoonfuls of borax to a quart of water. This solution should be allowed to run in and out very slowly, and should reach as high into the bowel as possible. After this has been ejected completely, a solution of quassia should be injected slowly. This is made by adding one ounce of quassia chips to eight ounces of water, bringing it to a boil, and straining. The irrigation of the bowel and the injection of the quassia water should be repeated every day for three days. After that it may be done less frequently. The bowel movements must be examined every day to determine whether or not the worms are present. Particular care must be taken to examine the external genitals so that the baby may not become reinfected. It is not uncommon for the worms to remain hidden about the baby's genitals, and later to reach the rectum, setting up a reinfection.

RICKETS

This is a disease which is due to some nutritional disorder. It is chronic in character.

The bones show the effects of rickets more clearly than any other part of the body. It is apt to manifest its symptoms after the baby is six months old, although the first symptoms may appear later, up to two and a half to three years old.

Cause

A certain amount of the undernourishment which leads to rickets is due to lack of prenatal care, because the mother's diet during her pregnant period has not supplied the child with the necessary materials for developing the bones in a normal manner. After the birth of the child, rickets may occur as a result of too prolonged use of the various proprietary foods, unless they are made up with plenty of fresh milk. Lack of fat or cream in the diet also frequently leads to the occurrence of rickets.

Symptoms

The symptoms of rickets are only fairly well defined in their early stage. At first all that may be noticed is that the child becomes increasingly restless and frequently there may be some pallor and anemia. Sleep is disturbed. The characteristic symptom is marked sweating of the head, particularly at night. It is not uncommon to find the baby's pillow quite wet. As

the disease progresses there are more marked bodily changes. The pot-belly abdomen is often the first symptom noticed. Here the abdomen becomes very large in proportion to the rest of the body and stands out prominently. Children with rickets always are late in showing the normal signs of development. Sitting up, creeping and walking will occur several months after the proper time. Dentition is apt to be very much delayed. If treatment is not started early, we have the permanent results of rickets which are apt to be serious. As softening of the bones is characteristic of the disease, children who are allowed to walk too early are apt to become bow-legged. In any event the bones become enlarged and may be deformed. The head is over-size in proportion to the growth of the rest of the body, and the top of the head is apt to be flat. The wrist and ankle bones may show signs of enlargement. Frequently the chest is deformed, and on each rib in front appears a small, hard nodule of bone. As these nodules appear in about the same place on each rib, they can be felt on each rib and form what is known as the "rachitic rosary." Children who have rickets are subject to many symptoms of illness. They are apt to be constipated and to have various types of in-

testinal trouble. Convulsions are not uncommon in rachitic children.

Treatment

As rickets is a nutritional disease, the way to treat it is to change the diet. If it has been caused by too prolonged use of proprietary foods made without milk an absolute change in the manner of feeding must be made at once. Fresh milk always should be part of the dietary. If the milk must be pasteurized or boiled, orange juice, prune juice or the juice of canned tomatoes should be given, at least two teaspoonfuls of the juice each day. If there is a tendency to rickets, beef juice, the white of coddled eggs and vegetable broths may be added at the age of six months. Special attention must be paid to the bowel action of such children, and it is essential that they have a free movement once each day. Children with a predisposition to rickets or those who have already developed the disease should stay outdoors the greater part of the day. Sleeping outdoors is one of the best methods of treatment we know anything about. Medical treatment must be left to the physician, but it is permissible to use cod liver oil in doses of from one half to one teaspoonful three times a day for children over nine months of age.

SCURVY

Scurvy is a nutritional disease, due to wrong feeding. It is most common in the latter part of the first year of life, when the baby's need of a changed diet is evident although milk feeding is still continued. However, it may occur during the second year, if the child is not being fed properly.

Cause

The most common cause of scurvy is too long continued use of one type of food so that the diet is not properly balanced. In infancy, therefore, it is essential to see that the child receives some fresh food. Frequently it happens that the long-continued use of proprietary foods, boiled milk or pasteurized milk will lead to the occurrence of scurvy.

Recent investigations have shown that there are certain vital food elements which are known as *vitamines* and which occur in various types of fresh foods, including raw milk. They also occur in breast milk. It is possible that pasteurizing or sterilizing the milk destroys them.

Symptoms

The most characteristic sign of scurvy is soreness and tenderness of the bones. This occurs more frequently in the child's legs and he will

cry out when handled. There may be some swelling of the knees and ankles, and less commonly, of the other joints of the body. This must not be mistaken for rheumatism, a disease which does not occur in children under one year of age. As the baby lies in bed, he seems unwilling to move and resents being handled or lifted. The gums frequently are swollen and may be congested, and of purplish color. They are apt to bleed and this bleeding sometimes occurs also from the nose and bowels. Frequently, in advanced cases, the child's legs will be covered with what seem to be black and blue spots.

Treatment

The treatment of this disease is indicated by what is given as the cause. The proper way to prevent scurvy is to see that, after three months of age, the baby receives every morning two teaspoonfuls of orange juice, prune juice or the strained juice of canned tomatoes at least one hour before the first morning feeding. This is particularly necessary if the baby is being fed on proprietary foods or pasteurized milk. Care should be taken that weaning is not delayed too long. Whenever possible, fresh milk should be used. At least some proportion of it must be included in the dietary, even if the balance of the food is of another character.

If the symptoms develop when the child is six months old or over, it is well to add to the diet a little of the mealy part of a baked potato, a teaspoonful of beef juice on a small piece of dry bread or two teaspoonfuls of apple sauce or the white of a coddled egg. These articles should be given alternately, on succeeding days. This treatment of scurvy will result in marked improvement of the condition and usually will result in an entire cure within three weeks.

SPRUE AND THRUSH

A common complaint of infancy is known as *sprue* or *thrush*. The symptoms are tiny white threads or flakes which appear on the inner side of the lips or inside the cheeks. The whole inside of the mouth and tongue may be covered. In such cases it may be necessary to wash out the baby's mouth, using a solution of borax or soda bicarbonate (baking soda), one teaspoonful to three ounces of water. This may be done twice a day. Absorbent cotton should be wound around the little finger of the mother, then dipped into the solution and applied to the affected surfaces with a gentle rotary motion of the finger. No force whatever should be used for the delicate mucous membrane is very easily injured.

PRICKLY HEAT

Prickly heat consists of fine red pimples which may occur all over the body. They are noticeable especially where there has been irritation or undue pressure from the underclothing. They are due to inflammation of the pores, and are caused by excessive perspiration or the irritation from flannel underclothing. To avoid prickly heat, the body should be kept cool and there should be frequent cool sponge baths during the hot weather. Muslin or linen always should be worn next to the skin. This is proper even in very young babies.

Treatment

For treatment, bran or soda baths are advised. Sponge baths may be given with equal parts of vinegar and water. The skin never should be rubbed, but always patted dry, and after any kind of bath should be well dusted. For a baby with slight prickly heat a powder composed of one part boric acid to four parts powdered starch is advised. If the secretion is excessive or the itching is extreme, a powder made of one part zinc oxide to five parts starch or stearate of zinc powder will be found to have both healing and soothing qualities.

EARACHE

In very young babies symptoms of earache are apt to be obscure. Usually the first symptom is loss of appetite, followed by an increase in temperature, the fever going as high as 103 to 105 degrees. The baby is drowsy at first, later becoming extremely restless with much tossing about. Sometimes the child may be noticed attempting to move his hand up to the affected ear. Vomiting is not uncommon. The diagnosis of earache in a young infant is not easy, therefore it is necessary to determine that no other condition exists which would cause the fever and apparent pain. If any indication exists that the pain is in the child's head, it is well to assume that the ear may possibly be involved and to proceed accordingly.

Treatment

Heat in some form is the best early treatment. The heat should be dry and continuous. The child's head should be allowed to lie against a hot water bag, care being taken to see that it is not hot enough to burn the baby's skin. Bags filled with salt may be heated in the oven and wrapped around with flannel. This furnishes a good method of applying heat. If the symptoms do not subside with this hot application, it is well to irrigate the ear with

a very warm solution of boric acid, a teaspoonful to a pint of water, or a solution of salt and warm water, a teaspoonful to a pint. If the pain still persists after the irrigation, a doctor should be consulted at once, for it may be necessary to have an incision made in the ear drum. Occasionally the ear drum will rupture spontaneously, and after that there may be a flow of pus from the ear for several days. As long as this pus appears the irrigation should be carried on two or three times a day and the ear kept absolutely clean. As soon as the ear drum ruptures or is perforated, the symptoms of earache will subside and rarely return unless the drum heals too rapidly.

Method of Irrigation

There are two methods that may be used in irrigating the ear. First is by means of a fountain syringe at a height of two feet above the head of the child. He lies on his back, turned slightly towards the side of the ear that is affected. A shallow basin should be placed under the ear, and the nozzle of the fountain syringe held about one to two inches above the opening of the ear canal. The stream should be directed towards this opening, and the water should be allowed to flow in very gently, and to flow out of the ear freely at the same time. No force whatever should be used. One

pint of the solution used in the ear is quite enough. The second method is by means of a small ear syringe, made like a soft rubber ball, drawn out to a point on one side. This may be squeezed and filled with the solution then squeezed gently to expel the contents in the baby's ear canal. Care must be taken to see that no pressure is directed inside the child's ear, and that the water flows out freely. After the irrigation has been completed the outside of the ear canal should be wiped out gently with absorbent cotton. (See illustration opposite page 131.)

HICCUGHS

In babies, hiccoughs usually are caused by too rapid nursing either from the breast or from the bottle. Over-eating, with consequent indigestion and the formation of gas in the stomach, also will cause hiccoughs.

Treatment

The treatment of hiccoughs consists in prevention; that is, care of the diet to correct any tendency to over-eating. If the baby is bottle fed, attention must be paid to the nipple to see that the milk does not flow through in too free a manner. It should come through only a drop at a time. The baby must not be allowed to nurse too rapidly, and a full twenty

minutes is necessary for each feeding. For acute attacks of hiccoughs ten drops of rhubarb and soda mixture in a teaspoonful of water or one-quarter teaspoonful of soda bicarbonate to a teaspoonful of water usually will relieve the attack. If there is much gas formation in the stomach or intestines, a colon irrigation is advised.

SKIN DISEASES

ECZEMA

Eczema in infancy is fairly common. It is more apt to occur in children who appear well nourished, and who are healthy looking and fat. It may occur either in breast fed or bottle fed babies, but is not common in poorly nourished children. The disease probably is due to both internal and external conditions. Over-feeding of milk which contains too much fat is responsible for many cases. Some children, however, have a certain susceptibility to eczema and it continues all through infancy, notwithstanding everything that is done to prevent or relieve it. The external causes are exposure to strong winds or cold outdoors. The first symptoms noticed are usually those of chapping of the face. It may occur also as a result of lack of cleanliness, when irritating discharges from the bowels or other bodily

cavities are allowed to remain for any length of time. Irritation from rough clothing also has been known to cause eczematous conditions.

Location of Eczema

Usually eczema appears on the cheeks, forehead and scalp, although it may occur on almost any part of the body. Upon the trunk or extremities it occurs usually in patches. When it appears on the scalp it is sometimes referred to as "milk crust," and is seen in the form of a yellow or grayish secretion, forming a crust which covers the entire head of the child. The first symptoms are those of redness and roughness of the skin. Later, the skin becomes moist, with much secretion. This dries and forms heavy crusts which become hard and unyielding. There is evidence that eczema causes intense itching.

Treatment

Attacks of eczema rarely last beyond the first year, although older children sometimes are affected. The treatment consists first in rearranging the hygiene of the baby's life, with particular reference to the diet. The food must be diluted and the interval of feeding lengthened. In breast fed infants, water should be given immediately after each feeding. In bottle fed infants, skimmed milk

should be used in place of whole milk so as to reduce the amount of fats. If no improvement is shown the amount of sugar also should be reduced. The child should be given plenty of water to drink. The local treatment varies slightly according to whether the eruption is on the body or on the scalp.

Local Treatment for Eczema of the Scalp

The affected area should be covered with olive oil which should be applied freely by means of muslin cloths dipped in it. These should cover the head of the baby, and should be kept in place by a soft cap. They should be changed twice a day, when the oil must be renewed. At the end of three or four days, the scalp should be washed with warm water and soap, and effort may then be made to remove the crusts very gently. If there is any bleeding the oil applications must be commenced again as no force must ever be used in removing the crusts. After they have been removed, a soothing ointment should be applied. This may consist of a mixture of equal parts of lime water and sweet almond oil, or zinc oxide ointment. The ointment should be spread upon muslin and kept in close contact with the affected area.

Local Treatment for Eczema of the Body

The eruption should be covered with some mild ointment, such as zinc oxide. No water should be allowed to come into contact with the eczema and all cleansing must be done gently by means of soft cloths dipped in sweet oil.

INTERTRIGO

This is a term which is generally applied to an intense red eruption which occurs usually when two moist surfaces come into contact. Sometimes it is thought of as a form of eczema. It resembles severe chafing and sometimes the skin comes off over fairly large areas, and the surface is moist. There rarely is any formation of crusts. Intertrigo usually occurs between the thighs, about the anus, back of the ears, in the axilla, the folds of the neck, or in other places where the skin folds on itself, or comes into contact with any other part of the body.

Cause

Usually the cause is dependent upon some form of uncleanness, that is, that the diapers are not changed frequently enough, that there has been excessive perspiration of the skin with bathing at too infrequent intervals, or it may be that the bowel discharges have been irritating.

Treatment

The baby's body must be kept scrupulously clean, the diapers changed as soon as they have been soiled, and the parts of the body which come into contact with any other part must be kept dry and carefully dusted with a good talcum or boric acid powder. When intertrigo has appeared, the area should be washed carefully and covered with zinc oxide ointment or stearate of zinc powder. The baby should be given plenty of water to drink between meals, the milk should be diluted, and the interval of feeding lengthened. In addition, it is well to stop the use of sugar for a few days in the milk formula.

How to Prevent Scratching in Skin Diseases

Eczema and other itching skin diseases are made worse by scratching. The two methods which may be employed to prevent the child's irritating himself in this way, are by the use of aluminum mits and cardboard cuffs which are placed over the child's elbows. Both of these have been described in this book under the heading of "Treatment for Thumb-Sucking and Nail Biting."

CROUP

Croup is an acute spasm of the larynx, accompanied by a harsh, brassy cough, noisy and

difficult breathing and occasionally by signs of partial suffocation. It is not common in young babies, rarely appearing before six months of age. The vast majority of cases occur when the child is from three to six years of age. There seems to exist in some children a predisposition to croup, which may be a family trait. If there is one attack there are apt to be others. Sometimes the attacks occur three or four nights in succession. Again, there may be a long interval between them.

Cause

The immediate exciting cause of croup seems to be exposure to cold or some form of indigestion. Large adenoids and hypertrophied tonsils often are predisposing causes.

Onset

During the day the child may exhibit some slight difficulty in breathing and older children may have a hoarse, rather hollow and barking cough. This becomes increasingly worse towards evening although the child may finally go to sleep. The attack itself generally comes on about midnight. The child awakens suddenly, with great difficulty in breathing, loud, noisy inspirations with a characteristic sound which, once heard, is rarely forgotten. The child

appears to be in great distress. The mucous membrane may be blue and sometimes there seems to be imminent danger of suffocation. The pulse is rapid, occasionally there is slight fever, although the temperature rarely goes above 102. Sometimes the child is quite prostrated, but it must be remembered that this disease is never fatal although it is always alarming. After the attack subsides the child usually falls into a refreshing sleep and seems quite well again the next day. There may be recurrent attacks of croup for two or three nights in succession, then they may stop for weeks or even months.

Prevention

A child with a tendency to croup should be kept in the open air as much as possible. If he can be accustomed to cold bathing, so much the better. In any event, the neck and chest should be sponged with cold water night and morning. If adenoids and enlarged tonsils are present, they should be removed. As digestive disturbances often cause croup, care must be taken to see that anything the baby or young child eats is readily digestible. In infants too rich milk or too frequent feeding may possibly be the cause, and feeding intervals should be lengthened and the milk

diluted. For older children tonic treatment may be necessary.

Treatment

When an attack occurs the best remedy is syrup of ipecac. This may be given in doses of thirty drops every fifteen minutes for a baby from six months to a year old and one-half to one teaspoonful every ten to fifteen minutes for a child of two years. The dose should be repeated until vomiting occurs. If vomiting does not occur after two or three doses the child should be given a teaspoonful of white vaseline or two teaspoonfuls of goose grease. Hot flaxseed poultices or hot fomentations should be placed around the child's neck. If there is much difficulty in breathing, a croup kettle should be used. If a regular croup kettle is not available, an ordinary tea-kettle can be made to answer the desired purpose. It should be two-thirds full of water, which must be boiling vigorously when the kettle is taken from the stove. It should then be placed on a chair close to the bed and over the bed should be arranged a canopy. This may be done easily by raising an umbrella and then draping sheets over it so that the child is under a tent. The spout of the kettle is then inserted through an opening in the sheet and the child allowed to breathe the moist and steaming air.

Such treatment as this usually loosens up the cough and vomiting almost invariably relieves the spasm. If the attack recurs during the night, the treatment must be repeated. The next day the child should be kept quietly in bed, and it is advisable to give the syrup of ipecac in five-drop doses every two hours during the daytime in order to relax the spasm of the larynx.

ACUTE CATARRHAL BRONCHITIS

Acute catarrhal bronchitis is the ordinary type of cold which is common in infancy. This particular kind of cold occurs commonly during the first year and diminishes in frequency during the second year. It is particularly common in undernourished babies or those who have rickets. Adenoids and enlarged tonsils also seem to be predisposing causes.

Cause

The immediate cause may be chilling of the body surface which usually comes from being overdressed, and then having the body surfaces chilled while they are perspiring. Cold air alone rarely causes colds. Warm, vitiated and superheated air frequently does. Babies are much more apt to take cold if they are kept in a room with many other people, and are not given opportunities for being in the fresh air

the greater part of the twenty-four hours. Colds of this type occur as secondary complications after measles and whooping cough, or some other infectious disease.

Symptoms

There usually is running of the nose, difficulty in breathing owing to the stoppage of the nasal passages. The baby is apt to have a distressing cough which is rather harsh. Children under nine months of age rarely spit up any mucus. It is probable that the mucus comes up into the throat, and then is swallowed. This will sometimes cause vomiting which may consist largely of mucus with a small amount of food. The respirations are apt to be increased in frequency and accompanied by rattling sounds caused by the mucus in the lungs. There sometimes is a slight increase in temperature up to 100 or 102 degrees which may continue for two or three days. The baby is restless, shows loss of appetite, and occasionally there is fever and diarrhoea.

Prevention

Babies who are kept in the open air most of the day, and who sleep in well-ventilated rooms seldom are affected with colds. As early as possible they should become accustomed to having cool sponge baths at least once a day,

with vigorous rubbing afterwards. This should be given, however, only when the skin becomes a good pink color after the bath, and the mucous membrane of the mouth and under the nails is a deep pink or red. Digestive disturbances must be avoided, the clothing should be light in weight and of proper warmth for the weather.

Treatment

Whenever the baby has a cold he should be kept in bed during the attack. It is absolutely essential that the room should be well-ventilated, but it must not be cold. The temperature should not be below sixty-eight degrees. Two or three times a day the baby should be taken out of the room while the latter is being aired. A dose of castor oil should be given at the onset of the cold, and thereafter the child should receive plenty of water to drink. If there is any tendency to indigestion the feeding interval should be lengthened. Breast fed babies should be given water after each feeding and bottle fed babies should have the milk diluted for a day or two.

CHAPTER IX
FOOD RECIPES

Albumen Water

The white of one fresh egg should be placed in a dish and separated lightly with a fork. Add half a pint of water and a pinch of salt. Shake and strain through fine muslin. Keep covered in a cold place.

Rice Water

Two heaping tablespoonfuls of rice should be soaked overnight. In the morning, add a quart of water and a pinch of salt. Boil for three hours, adding water from time to time to keep the quantity at one quart. Strain through a fine cloth and keep cold until used.

Barley Water

One tablespoonful of barley grains, one pint of water and a pinch of salt. Boil for three hours, adding water from time to time to keep the quantity at one pint. Strain through a fine cloth and keep cold until used. If prepared barley flour or the patent barley is used, it should be made by taking a level tablespoonful of the flour and mixing it to a paste with a little cold water. This should be added to a pint of boiling water and the whole boiled for thirty minutes, then strained and cooled. During the process of boiling, water should be

added from time to time to keep the quantity at one pint. A double boiler is preferable for preparing the barley water made from the flour. If an ordinary saucepan is used, the mixture must be stirred constantly to avoid scorching.

Oatmeal Water

One tablespoonful of oatmeal water added to one pint of water and a pinch of salt. Boil for three hours, adding water from time to time to keep the quantity at one pint. Strain through a cloth and keep cool until used.

Cereal Gruels

These may be made from rice, oatmeal or barley. If the grains are used take two tablespoonfuls and soak overnight. In the morning, cook for three hours in a double boiler with sufficient water so that the product is of the consistency of thin gruel. Strain through a coarse strainer and serve with milk. Gruel may be made also from barley flour by using four level tablespoonfuls to a pint of water and boiling for thirty minutes.

Whey

Warm one pint of fresh milk to blood heat (tepid), add two teaspoonfuls of Fairchild's essence of pepsin or liquid rennet. Stir quickly

for a moment only. Let the mixture stand until it is chilled. At the end of an hour break up the mixture with a fork and strain through fine muslin. The liquid is whey and can be used for infant feeding for a short period of time in cases of diarrhoea or vomiting.

Junket

This is made in the same way as whey except that it should not be broken up. The jellied milk can be used for feeding children over eight or nine months of age. One or two teaspoonfuls of cane sugar may be added to the above recipe. For older children a little vanilla or nutmeg may be used for flavor.

Beef Juice—Hot Method

Take half a pound of upper round or sirloin steak. Warm slightly. Sear the surface by holding the meat on the broiler, close to the flame. Cut in fairly small squares and press out the juices in a meat press, lemon squeezer or potato ricer. Add a pinch of salt. Place the juice in a covered jar and keep cold. Before using, it may be warmed slightly by placing a small portion in a cup which is set into a pan or larger cup containing warm water. Beef juice should not be heated until it is more than blood warm.

Beef Juice—Cold Method

Chop fine one-half pound of round steak. Put into a fruit jar, cover the meat with cold water and add a pinch of salt. Place the cover on the jar, and put the whole in the ice-box for six to eight hours, shaking occasionally. At the end of eight hours strain the meat and liquid through a fine cloth. This process takes longer and the juice is not quite so palatable for older children, but it is more economical, and the resultant beef juice is slightly more nutritious. It is preferable, therefore, to prepare the beef juice for young children in this way. It may be heated before serving by placing it in a cup which is set into a dish of warm water.

Scraped Beef

Scrape a slice of round of beef with a dull knife until the pulp is obtained, but none of the fiber. This pulp should be made into a small cake, and kept cold until used. Before using, a small portion should be spread out thinly on a saucer, a pinch of salt sprinkled over the top, the whole placed in the oven or on top of a teakettle for a minute or two until heated through and the juice is started.

Coddled Egg

Put an egg, without removing the shell, into a saucepan with boiling water. Take the pan from the fire at once, cover and leave it for seven minutes. The egg should then be taken out, and only the white used. The latter should be of the consistency of jelly.

Chicken, Lamb and Beef Broth

One pound of meat with the fat removed carefully should be cut into small pieces. Cover with one pint of cold water and add a pinch of salt. Simmer for two to three hours over a slow fire, adding sufficient water from time to time to keep the amount at least one pint. Strain, let cool and remove the top layer of fat. The broth then may be reheated, and if necessary, diluted with a small amount of water.

Milk Soup

The water in which any green vegetables have been cooked should be saved, and added to hot milk in the proportion of one-half of each. If necessary, a small pinch of salt may be added and the mixture allowed to boil for five minutes.

Vegetable Soup

Half a pound of lean meat, one large carrot cut in cubes, two potatoes cut in cubes, soup

greens and a handful of spinach, chopped fine. One quart of water. Salt to taste. Simmer for three hours, until all vegetables are soft. Mash and put through a coarse strainer. Other vegetables such as green peas or celery may be added or substituted in season.

Spinach Soup

The spinach should first be cooked well and left in its own liquid. Take one pint of milk, add to this one cupful of the water in which the spinach was cooked, then press half a cupful of spinach through a fine colander, mixing this with the milk. Add a pinch of salt, place the whole in a double boiler, and cook well for fifteen minutes. The soup may be varied a little by adding a tablespoonful of flour which has been mixed in cold milk and stirred gradually into the soup. This thickening, however, is advised only for older children.

Prune Juice and Prune Pulp

Cook prunes until they are very soft, adding enough sugar to have them slightly sweetened. The juice may be used in place of orange juice for young babies, while the cooked prunes may be placed in a fine sieve, and the pulp rubbed through. This prune pulp may be fed to children over six months of age.

Bran Biscuits

Two and a half cups of bran, one and a half cups of white flour, one cup of sour milk, one-half teaspoonful of baking soda, one-eighth cup of butter, two tablespoonfuls of molasses. Bake in muffin rings with strong heat, as for bread. If desired, the muffins may be split and toasted just before serving.

CHAPTER X

NURSERY REMEDIES

Castor Oil

Dosage :

Under three months, 1 teaspoonful.

Three to six months, 2 teaspoonfuls.

Six to twelve months, 1 tablespoonful.

Calomel

Dosage :

Under three months, one-tenth grain tablet every 15 minutes for 3 doses.

Three to six months, one-tenth grain tablet every 15 minutes for 6 doses.

Six to nine months, one-tenth grain tablet every 15 minutes for 9 doses.

Nine to twelve months, one-tenth grain tablet every 15 minutes for 10 doses.

The tablet may be crushed and dissolved in a teaspoonful of water.

Milk of Magnesia

Phillips' milk of magnesia probably is the best mild laxative to use for children under one year of age. It should be given in teaspoonful doses night and morning. In breast fed babies this dose may be given immediately after the morning and night nursings. In bottle fed babies the dose may be added to the morning and evening bottles of milk.

Rhubarb and Soda

This mixture may be bought already prepared at any drug store. It is an excellent mild laxative for babies and children.

Dosage

Up to six months a half teaspoonful. From one to three years one teaspoonful. The dose should be given twice a day, after feeding.

Syrup of Ipecac

This is the best medicine we have for croup. For a baby under six months of age it should be given in fifteen-drop doses every ten to fifteen minutes until the child vomits. From six to twelve months the dose may be increased from a half to one teaspoonful, repeated at fifteen-minute to half-hour intervals. Not more than three teaspoonfuls should be given. Syrup of ipecac may be used also if the child has eaten anything that is indigestible, and where it is desirable to stimulate vomiting in order to empty the stomach of its contents. Here one dose usually is sufficient. If syrup of ipecac is not available, vomiting may be induced by placing one-quarter teaspoonful of mustard or a teaspoonful of salt in a glass of lukewarm water and forcing the child to drink it.

Boric Acid Solution

Add one tablespoonful of boric acid powder to one pint of water. Boil in a clean dish for five minutes, adding water from time to time so that the total remains about one pint. Pour the solution into an absolutely clean bottle which has been scoured thoroughly with hot soapsuds and rinsed with boiling water. Keep the bottle corked tightly.

Flaxseed Poultice

For severe colds or croup a hot flaxseed poultice may be placed on the child's neck. It should not be allowed to remain after it has cooled, and as soon as it is removed the chest and neck should be rubbed well with alcohol or camphorated oil, and then covered with a piece of flannel. To make flaxseed poultices, take a pint of water and bring it to a brisk boil. Powdered flaxseed then should be sifted gradually into the water until a thick pasty mixture is the result. A large square of gauze or old linen is laid on a clean table and the flaxseed spread on this to a thickness of about an inch, covering an area large enough to cover the child's chest or to go around the neck. The edges of the gauze then should be folded over the poultice, making three or four layers in the back while in the front there is simply the

one fold of old linen or possibly two of gauze. The poultice should be applied as hot as it can be borne comfortably, care being taken that the skin is not burned.

Carron Oil

This probably is the best remedy we have for serious burns. It consists of equal parts of linseed oil and lime water. The mixture does not keep well and, particularly in warm weather, it is better to keep the ingredients separate and mix them as needed. It must be shaken well so that a thick emulsion is formed. This should be spread liberally over the burned surface, and covered with clean gauze. Absorbent cotton is then placed over the surface so that all air will be excluded.

Stearate of Zinc

A greasy powder, to be used freely on any chafed surface or where it is desired to use a powder that will keep out moisture. It is excellent in cases of severe chafing or prickly heat.

Zinc Oxide Ointment

This is a good remedy for burns, scratches, chafing or various forms of skin diseases, including eczema. It should be spread thickly on a piece of sterile gauze or old linen, and

then laid over the affected part. The dressing may be kept in place by fastening the gauze with two strips of adhesive plaster, projecting over the edge of the gauze and adhering to the skin.

Dusting Powders for Delicate Skins

(a) For the baby with slight prickly heat or rash, or where there is any redness of the skin, a powder made of one part boric acid powder to four parts powdered starch is advised.

(b) If the skin is excoriated or the chafing is extreme, a powder consisting of one part zinc oxide to five parts of starch will be found to have excellent healing properties.

(c) Talcum powder: Equal parts of pure talcum and starch form an excellent dusting powder. Plain talcum may be used. It is important to see that it is not perfumed, and that it is of the finest quality obtainable.

TABLE OF MEASURES

Unless otherwise indicated, a tablespoonful and a teaspoonful measure should be level, not heaping.

Liquid Measure

- 4 teaspoonfuls equal one tablespoonful.
- 2 tablespoonfuls equal one ounce.
- 1 tumblerful equals eight ounces or $\frac{1}{2}$ pint.

Dry Measure

- 4 teaspoonfuls equal one tablespoonful.
- 1 heaping tablespoonful of cane sugar equals one ounce.
- 3 level tablespoonfuls milk sugar equals one ounce.
- 1 dram equals one teaspoonful.

GLOSSARY

Abdomen

The belly. That part of the trunk of the human body between the chest and the legs.

Abdominal Band

A broad strip of flannel or other material placed around the body over the abdomen.

Abnormal

Different from the normal or usual. Contrary to the natural condition.

Abscess

A collection of matter or pus in any part of the body as a result of inflammation.

Adenoids

A mass of soft, glandular tissue, situated in the upper part of the pharynx or throat, just back of the posterior opening of the nostrils. When enlarged this growth blocks up the posterior nasal passage, and prevents breathing through the nose. All children have some adenoid tissue. It is only when it has grown to such an extent that it interferes with nasal breathing or predisposes to constant colds or ear disease that its removal by surgical means is desirable.

Aloes

A bitter drug. Taken internally as a laxative. Used externally because of its bitter taste and because it is not harmful, except when taken in large quantities.

Anemia

A deficiency in the haemoglobin or iron which normally is found in the corpuscles or cells of the blood.

Bacteria

Germ. Bacteria are of many types, each usually associated with some special disease, such as bacteria of typhoid, the bacteria of diphtheria, etc. Many bacteria are entirely harmless and need be noticed only when they occur in larger numbers than 30,000 per cubic centimeter of milk. The bacteria which cause disease usually are known as "toxic bacteria."

Band

See *abdominal band*.

Bassinet

A basket, box or similar article, lined, and prepared for use as a bed for a newborn, or very young baby.

Bladder

The organ which holds the urine from the time it leaves the kidneys until it passes from the body. A thin sac in the front part of the pelvis, just in front of the uterus.

Blood Heat

Tepid. At the temperature of the body or blood, normally 98.4 degrees Fahrenheit.

Body Temperature

The normal body temperature is 98.4 degrees Fahrenheit. An abnormal body temperature is anything higher than the degree mentioned.

Brassiere

A breast binder, usually fitted in so that it adjusts itself around the breast, forming a natural support, without pressure. Sometimes it is made simply with darts, sometimes with thin flexible bones to give it a smooth and even shape.

Breast Binder

A band placed around the breast, either before or after confinement.

Breast Pump

An instrument for drawing milk out of the breast.

Buttocks

(Breech.) The fleshy part of the body, behind the hip joints, forming the big fleshy mass in the back where the upper part of the legs join the body.

Breech

See *buttocks*.

Cathartic

A medicine which acts upon the bowels in a manner to produce a free movement. The term *laxative* is used to denote a mild cathartic. A cathartic medicine is one which produces some form of purging, and which has a stronger effect than a laxative.

Catheter

A rubber tube, open at one end, and with one or more perforations at the other end. It is used by introducing the perforated end through the opening in the bladder for the purpose of drawing off the urine. Should never be used by anyone who has not been fully instructed in the method of its insertion.

Chafing

Irritation, redness and inflammation of the skin caused by friction of the parts or between the folds of the skin, etc.

Circumcision

Removal of all or part of the prepuce or foreskin of the penis or genital organ of a male child.

Colon

That part of the bowel or large intestine which terminates in the rectum.

Colon Irrigation

The injection of water or other fluid through the rectum into the colon, the water being allowed to flow in and out without obstruction.

Constipation

The state of the bowels where no movement of the feces takes place for a definite time.

Constitutional Symptoms

General symptoms, such as fever, increase in pulse and respiration; symptoms of general illness. Used in contradistinction to local symptoms which consists of signs of injury or illness in any one part of the body.

Cutting Ring

A ring of some hard substance, such as ivory or celluloid used by the baby in order to help in the cutting of the teeth through the gums.

Dentition

The process of cutting teeth or the eruption of teeth through the gums.

Ear Drum

A membrane of the inner ear which receives sound impressions and from which the impression is transmitted to the brain.

Eczema

(Milk crust.) A skin eruption which may occur on any part of the body, but which is more common in the folds of the skin. When it occurs on the scalp it is sometimes known as "milk crust."

Element

Any one of the primary parts of a thing. The different substances from which anything is made up or composed.

Elimination

A throwing off or setting free.

Enema

A rectal injection, usually given for medicinal purposes. Is generally of plain or soapy water, and acts as a mechanical irritant to cause the bowel to move.

Eructation

The act of belching or casting off wind from the stomach.

Faeces

See *feces*.

Feces

Matter excreted from the bowels.

Fecal Matter

Same as *feces*.

Fomentation

A stupe. A cloth thoroughly wet with water or some medicated fluid. Hot fomentation. Cold fomentation.

Fontanelle

(Soft spot.) There are two fontanelles—the anterior and the posterior. They consist of soft spots in the head where the bones have not entirely united.

Anterior Fontanelle

Situated just above the forehead. Remains open for about eighteen months. At the end of that time the bones should be entirely joined together.

Posterior Fontanelle

Situated just above the back of the neck. Remains open about six weeks, at which time the bones should be entirely joined together.

Foreskin

The prepuce or fold of skin which extends over the glans or end of the penis, which is the male organ of the child.

Formula—Formulae

The prescribed method of preparing a combination of substances. In baby feeding this term usually refers to the mixture of the various ingredients to form the proper modification of milk for the individual infant.

Gas

Term used to denote the production of fermentation in the stomach or bowels.

Genital

Pertaining to the organs of generation or reproduction.

Genital Region

That part of the body which contains the genital organs, or that part of the body where the genital organs are situated.

*Germ*s

See *bacteria*.

Hygiene

Science of preservation of health by means of attention to sanitary surroundings and personal habits.

Incision

A cut.

Infection

The communication of disease germs by any means.

Infected

Contaminated with infectious matter, as "the child is infected with scarlet fever."

Infectious

Contagious; easily communicated; capable of extension by infection.

Inflammation

A diseased state, generally localized in some one part of the body, characterized by pain, swelling and redness, with or without fever.

Ingredients

The elements which enter into the composition of any mixture.

Injection

See *enema*. Water or watery solution thrown into any cavity of the body, as a rectal injection, for the purpose of making bowels move. Also used as a term to denote the injection of fluid underneath the skin by means of a hypodermic syringe.

Irrigation

The washing out of a cavity by a stream of water or other fluid.

Jaundice

Yellowness of the skin, eyes and secretions due to the presence of bile pigment in the blood.

Laxative

A mild cathartic. See *cathartic*.

Malnourished

Undernourished. A condition of the body characterized by underweight, poorly developed muscles, pallor, anemia, bodily fatigue and lack of bodily resistance to disease. Undernourishment or malnutrition may be caused by the presence of physical defects, insanitary surroundings, lack of proper hygienic living conditions, over-excitement, wrong kind of food, irregular feeding or underfeeding.

Massage

Rubbing and manipulation of the body to strengthen the muscles or other tissues.

Mastication

The act of chewing food.

Masturbation

The causing of sexual excitement by friction of the genital organs by rubbing with the hand or the clothing.

Milk Crust

See *eczema*.

Modification of Milk

A term used to describe the mixture of various ingredients, such as milk, water and sugar of milk to form a proper preparation for infant feeding.

Modified Milk

See *modification*.

Mucus

Liquid secreted by the mucous membranes.

Mucous Membrane

Lining of cavities which communicate with the external air, as the nose, mouth, etc. These membranes secrete a fluid called *mucus*.

Nausea

Sickness at the stomach.

Navel

A pit or scar in the center of the abdomen, left by the shrinking of the umbilical cord.

Nipple

The small protuberance in the center of each breast.

Nipple Shield

A contrivance of glass with rubber nipple in the center, the whole to be placed over the mother's nipple to protect it when it is sore.

Nutrition

The proper use of nourishment to build up the body, and make it healthy.

Pacifier

A term used to describe a rubber nipple which usually is attached to a base of celluloid, and used by children between feedings in order to keep them quiet. Its use is harmful, because of the possibility of infection, on account of the uncleanness of the pacifier and because the constant sucking leads to the formation of misshapen lips, irregular teeth, protruding upper jaw and adenoids and enlarged tonsils.

Penis

The external genital organ of the male.

Percentage Formula

A formula for infant feeding made up of the various ingredients, such as milk, water, milk sugar, etc., in proportions based upon the percentage of fats, carbohydrates, proteids and mineral substances which have been determined upon as the proper combination for the individual child.

Pores

Minute openings in the skin. Also refers to the openings of the sweat glands.

Pulse

The beating of the heart as felt through the wall of any artery. Usually felt best in the front of the wrist, just at the base of the thumb.

Pus

Matter given off from an open sore. The cream-like fluid found in abscesses.

Quassia

A bitter drug, having slight medicinal value. Generally used because of its bitter taste. It is used in infancy on the thumbs and forefingers to discourage thumb-sucking and nail-biting. When diluted it is used as an injection for worms.

Rachitis

See *rickets*.

Rectal

Pertaining to the rectum.

Rectum

The lowest part of the bowel from which the feces pass out of the body.

Respiration

Breathing.

Rickets

A disease of childhood marked by tenderness and softening of the bones, resulting in curvature or deformity of the bones.

Rupture

A hernia. The forcible tearing or breaking of a part. The protrusion of a loop of the intestine through an opening in the muscular wall of the abdomen.

Saliva

Spit. A clear fluid which is secreted by glands inside of the mouth.

Scurvy

A disease due mainly to the use of improper food.

Secretion

A substance separated from the blood and given off by some organ of the body.

Soft Spot

See *fontanelle*.

Spasm

A sudden, violent, involuntary contraction of a part or the whole of the body, due to muscular action.

Spasmodic

Having the nature of a spasm.

Suppository

A preparation of some substance which melts at the temperature of the body, usually introduced into the rectum for the purpose of stimulating the bowels to move.

Sterile

A condition showing the absence of harmful germs.

Sterilized

Made sterile.

Stools

Bowel movements. Feces.

Temperature

Degree of heat. The average temperature of the body in health is 98.4 degrees Fahrenheit.

Top Milk

The cream and that part of milk containing the fats which normally rises to the top when milk is left standing for any length of time.

Umbilicus

See *navel*. A pit or scar in the center of the abdomen left by the shrinking of the umbilical cord.

Undernourished

See *malnourished*.

Urine

Water secretion of the kidneys which flows from them into the bladder, and then is discharged from that organ to the outside of the body.

Ventilation

The supply of fresh air to any enclosed space, as a room.

Vitiate

To lower the bodily vitality. To lower the standard of any substance, such as vitiated atmosphere, where there is not sufficient oxygen. The air in a room becomes vitiated through lack of proper ventilation.

Wind

See *gas*.

Blank lined paper for writing.

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NOTES

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BABY'S RECORD

Name.....

Place of birth.....

Date of birth.....

Hour of birth.....

Attending physician.....

Attending nurse.....

Birth registered.....

Father's name.....

Mother's name.....

Christened on.....

At.....

By the Reverend.....

Persons present

.....

.....

.....

.....

.....

BABY'S WEIGHT

At birth.....	lbs.....	oz.
At one week.....	lbs.....	oz.
At two weeks.....	lbs.....	oz.
At one month.....	lbs.....	oz.
At two months.....	lbs.....	oz.
At three months.....	lbs.....	oz.
At four months.....	lbs.....	oz.
At five months.....	lbs.....	oz.
At six months.....	lbs.....	oz.
At seven months.....	lbs.....	oz.
At eight months.....	lbs.....	oz.
At nine months.....	lbs.....	oz.
At ten months.....	lbs.....	oz.
At eleven months.....	lbs.....	oz.
At twelve months.....	lbs.....	oz.

BABY'S HEIGHT

At birth.....	inches
At three months.....	inches
At six months.....	inches
At nine months.....	inches
At twelve months.....	inches

BABY'S FIRST BIRTHDAY

Baby is one year old today.....
and is.....inches tall, and weighs.....pounds.

BABY'S DEVELOPMENT

First outing.....

First noticed father or mother.....

First held head erect.....

First sat up alone.....

Began to creep on.....

Stood alone.....

Took first step.....

Began to walk.....

First smile.....

First laugh.....

First tooth appeared.....

Spoke first word.....

Baby's sayings.....

RECORD OF FEEDING

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SPECIAL EVENTS

Illnesses:

Medications:

Change of Routine:



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Baker

Healthy Babes

In a Williams MO

